August 1995 - Volume 12, No 8
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Australian Commodore & AMIGA Review

For professional and home users

Motorola 68060 ships

Cyberstorm Reviewed

ASIM CDFS

Mac Emulation with no hardware

AMOS 3D

BBS List, Dir Opus 5.11, Wordworth tutorial

Storage WARS UPDATE

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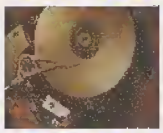

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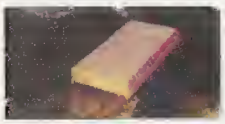

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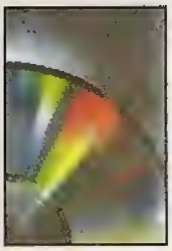

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4Mb 32Bit RAM + 68882 FPU
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SCSI-II add on for Mongoose or Cobra

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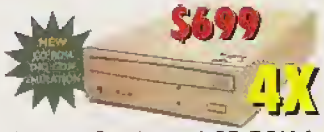

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CD32 Emulation

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Its quality has passed the broadcast test at many of Australia's commercial television networks. By now I'm sure you have seen the PAR output on television, but not know you've been watching it!

Many of our clients are using the PAR with 3D rendering packages such as Lightwave to produce TV commercials, Music videos and much, much more.

Here are some of the reasons the PAR has become so popular :-

- *Broadcast resolution output*
- *Real time 25fps Playback of video*
- *Full 24Bit Colour*
- *Component output (Betacam® MII®)*
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- *Composite Video output*
- *Interface with any Amiga graphics s/w*

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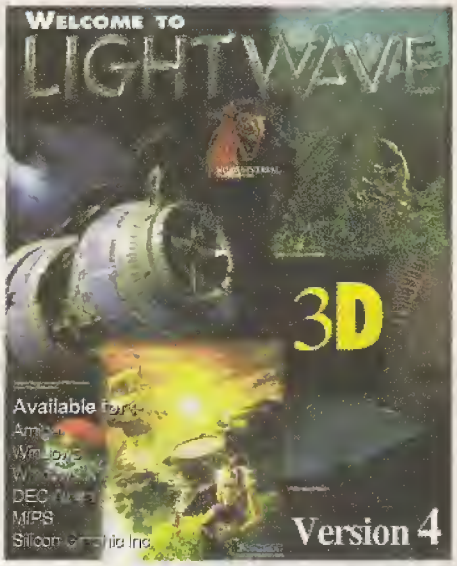

Model, Animate & Render with the incredibly powerful New version of LIGHTWAVE 3D. Version 4. Some of its new features include, Inverse Kinematics, Metaform functions and Multi Platform support - plus much more.

Transform your Amiga into a Digital video Non-Linear edit suite - with V-Lab motion

Here at last.... an affordable, broadcast resolution non-linear editing system has finally arrived in the form of V-Lab Motion!

Its a fully functional non-linear editor and real time 24-bit animation recorder with audio support via the Toccata 16 bit stereo sampler card.

Full time line edit control with A/B roll type interfades and wipes. Also keying and "Blue Box" effects.

V-Lab Motion was "product of the year" in AMIGA PLUS (Germany) as well as a "Perfect 10" an AMIGA COMPUTING First.

Here are some of the features of the V-Lab motion system :-

- *Outstanding quality non-linear editor*
- *16 bit audio with the Toccata*
- *Complete ARexx support*
- *Comprehensive digital effects*
- *Digital character generator*
- *Chroma keying for "Blue Box" FX*
- *Composite & Y/C inputs*
- *Composite & Y/C outputs*
- *Freely adjustable data rates*
- *Optional Component in/outputs*
- *Powerful Movie Shop Software*
- *Time Line & Hierarchical editing*
- *Use as animation recorder*
- ***$ 2788 for V-Lab Motion***
- ***$ 869 for Toccata***

"The V-Lab Motion system will blow your socks off!"
-- Michael Ricks, Producer/Director
-- SUNSTONE PICTURES, Phoenix, Arizona

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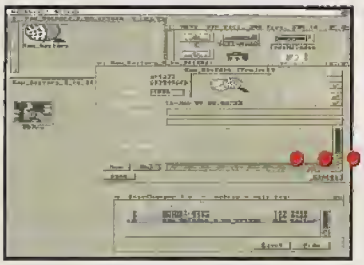
C O N T E N T S

August, '95
Vol 12, No 8

Features



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The Amiga's best CD filesystem gets a lot better!

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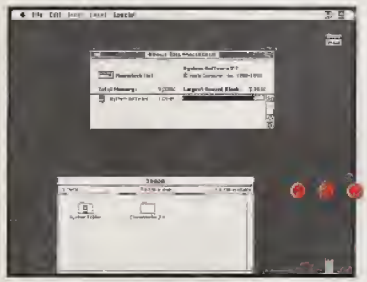
The fastest Amiga ever!



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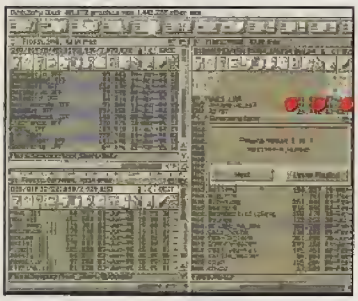

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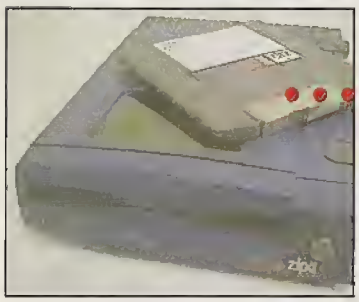

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Paper prices force rise

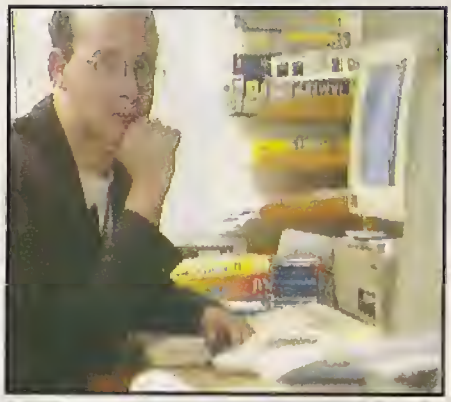
If there is one certainty in life, it is change. The past year has been kind enough to make it possible for Amiga Review to continue.

However, there have been some tough calls in the last few months that have meant we have been forced to adjust the format of the magazine, and you've no doubt noticed the cover price has gone up. The largest factor is not in fact anything to do with the Amiga community.

Right now there is a world wide paper shortage. We've seen increases in paper prices over the past six months and had managed to absorb these. However, the latest round of increases meant we had no choice but to up the cover price and switch to a thinner stock. We have not reduced the number of pages. Many other Australian publications will have had a similar price increase this month too.

Next month, we will look at our layout and find ways to increase the amount of information we can fit into one issue so we can give you better value for money.

There's a swag of new software products coming up - like TFX, Vlab Motion 2.5, Wordworth 4.0, and Lightwave 4.0, so there will be plenty to fill the pages of Amiga Review and keep your demands for new more powerful programs met. Of course the other big news we await is the



announcement of a local source for the new Amiga. Right now there has been no decision, however it looks like Amiga Technologies are moving toward finalising U.S. distribution, which is a good thing for product developer in that country.

August is a big month in the PC world, with PC '95 in Melbourne heralding the launch of Windows '95. Some Amiga owners have felt Microsoft's latest operating system was in fact a giant step toward Amiga like functionality on a PC.

Although it is true Windows '95 is a huge leap forwards, it is not a Workbench for the PC by any stretch of the imagination. The multitasking is better than anything they have delivered previously, however no PC product offers the Amigas brilliant screen switching capability. The interface still relies on a series of

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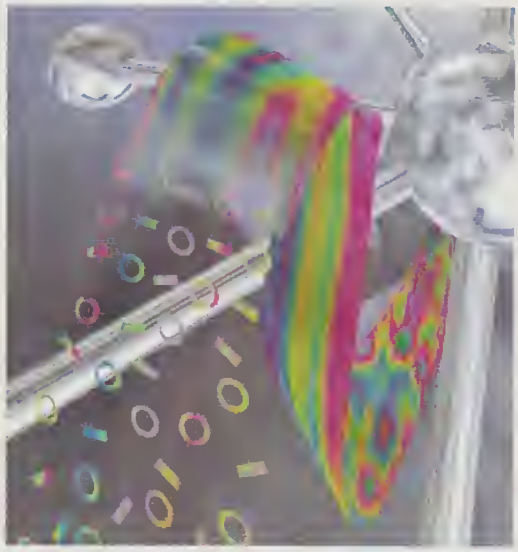

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clumsy programs to provide the functionality of Workbench offers through one interface. Windows is still a pretend interface - the icons still do not necessarily match what is really on your system.

Basic I/O functions like formatting a disk can still create a slow down in performance and the basic problem of most major applications requiring megabytes of virtual disk memory remains. Windows is better, but I still find myself feeling like one hand is tied behind my back whenever I switch over to a PC.

Compaq and Packard Bell have announced they will not be shipping Windows '95 as standard with machines - it will be a by request option. This move backs up comments I have made previously that as it stands Windows '95 has more power or complexity than most consumers will be able to deal with.

It will take at least a year for Microsoft to sort out some of the problems with this new fanged evolution of Windows. By then we will have new Amigas, and Workbench 4.0 will be well underway.

As a stop gap to better Amiga software, the subject of emulation often comes up. In this issue we've had a quick look at the latest very affordable method of running Macintosh programs. Shape Shifter is very cheap, and it works.

A fully functional registered version will be written up soon. ShapeShifter caused a storm on the Internet, where accusations from other Mac emulation authors suggesting parts of the code were copied from their software had experts on the subject in a frenzy of email exchange. As it turns out, there were no clean slates at the end of the day, and it is a very muddy area.

❑

Internet Access

If you're looking for Internet access, please note the disk set available from Amiga Review is configured to be used with Ausnet only. If you wish to use another service provider you will need to modify the scripts to suit. If you buy these disks, you should also refer back to the original article by Wes Tatters in the April '95 issue of Amiga Review.

Follow the instructions from the heading on configuring once you have the software installed according to the readme file on the disk.

To order your Internet disks, complete with a Mosaic style browser and TCP/IP version 4.0, call 1-800-252 879. Major credit cards accepted, as well as COD, or send a cheque or money order.

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Hollywood FX Lite	$ 79.95	Vista Pro 3	$ 99.95
Home Accounts 2 *Clearance*	$ 29.00	Wordworth V3.1	$139.00
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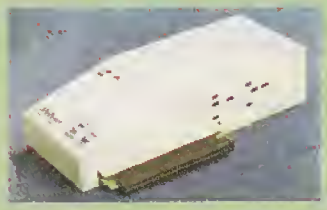

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Computer Tech moves

Computer Tech Services, who do repairs on all computer models including Amigas, has moved from Carlton to 200 Railway Parade, Kogarah 2217.

Their phone number is (02) 553 0021.

Zip news

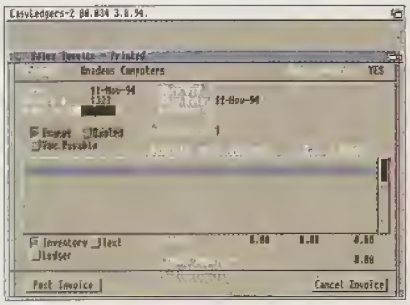
After our review of the Iomega Zip 100Mb drives last month, you may be champing at the bit to get your hands on one. Don't hold your breath.

Thanks to unprecedented demand and underpowered manufacturing facilities, Iomega won't be able to start filling Australian orders until mid-August at best and October at worst. But get your orders in anyway; it won't be at all surprising if the entire first shipment gets pre-sold!

Contact Digipic Productions on (02) 948 2766 for more information.

EasyLedgers cheaper!

EasyLedgers 2, the popular Amiga accounting program, is set to become even more popular with a $100 price drop. From July 30th, EasyLedgers will cost only $299. Contact Small-Biz Software on (074) 919190 for more information.



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CORRECTION

In the July Amiga Review's "Budget A1200 Accelerators" article, we stated that an economical solution to the surprisingly fast TRA1200's lack of a SCSI expansion option was to use a Squirrel SCSI controller instead. Amadeus Computers has informed us that this strategy works perfectly until you turn the computer on and discover that the two devices are completely incompatible.

Sorry about that.

What price new Amigas?

CEI, the biggest US Amiga dealer and one-time bidder for the Amiga technology, recently raised hackles among Amiga-freaks worldwide by widely publicising the specs and price of their version of the A4000T, to be available Real Soon Now from Amiga Technologies.

According to CEI, the 25MHz 68040 A4000T with 6Mb of RAM and a 540Mb hard drive would sell for $US3499.

Add a half-decent monitor to that and you're talking $US4000.

For $US4000, you can get yourself a IBM clone 75MHz Pentium with 16Mb of RAM, a 2Gb hard drive, a quad speed CD-ROM, a 2Mb video card, a 16 bit sound card, a V.34 modem and an NEC 15 inch monitor. Not as stylish, but light years ahead on 90% of the spec sheet.

Understandably, Amiga enthusiasts who learned of this rather high price screamed blue murder all over the networks, and CEI found itself in the middle of a storm of controversy.

Now Amiga Technologies has hastily stood up to say that they have not officially announced any pricing for the USA or anywhere else yet, and the CEI release was premature. Amiga Technologies went on to say that a sales conference slated for the second half of July and chaired by Petro Tyschtschenko, Amiga Technologies General Manager, would be open to all US Amiga dealers and would have some bearing on the final pricing.

There has been widespread speculation over the reason for CEI's announcement of an officially unofficial price. The general, and plausible, conclusion is that Amiga Technologies told CEI the price it was planning to charge for 4000Ts, and CEI factored

Continued on page 78...

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Welcome back to Media Watch; apologies for the nonappearance of the column last month; here's a bumper-sized collection to make up for it!

Removalists and New Age music?

Eddie Cejvan, who made the fatal mistake of not putting his address on his letter, spotted an Amiga in a brochure for Advance Removals and Storage. He photocopied the brochure and, indeed, a couple of guys in removalist garb are packing up a photocopier and an A2000.

He also sent a glossy brochure advertising Tony O'Connor and his personal brand of high-selling musical Valium, but we're pleased to say that what looked vaguely like an Amiga 1200 in the background of one photo has its mouse plugged in in the wrong place - so it's definitely an Atari. Phew.

Verse and worse

Nick Loncar of Perth, WA, spotted a 1084 on the ABC kids show Sky Trackers, and included a three verse work of poetry (created, he admitted, under the alfluence of incahol). We won't subject you to his creative outpourings, only our reply:

A fellow once hoped to reverse
His poor fortune by writing in verse
But it saddened the wag
When he read in the mag
"We've had that one!" Crushing, yet terse.

Dino show

Paul Shandi of Dee Why, NSW, was watching "Steven Spielberg's Dinosaurs" on the ABC and, during a segment on computer animation, there was a cut to a guy using DPaint. He faxed us his spotting mere minutes after the program finished, and was hopeful that his promptness would lead to a free sub. His hopes will remain unfulfilled.

Between the Lines

Tom Heeren was watching "Between the Lines" on channel 7 on the 22nd of June, and sighted a 1942 monitor showing spreadsheet or accounting data in a hotel office; he didn't see a computer, but only Amigas are saddled with 1942s. Norm Goodall of Ambarvale, NSW and Thomas Gallagher from Normanville, SA watched the same show on a different night and saw Tony setting up a security system in a safe house - with one shot clearly showing an unopened Amiga box on a table. Tony Parr of Largs Bay, SA, is another Between the Lines Amiga-hunter, and saw the safe house too, with many Amiga boxes, a possible 1200 and then shots of security camera video on Commodore monitors.

It's the sub, isn't it

Quite a lot of people obviously watched the Batman Forever making-of program on Channel 7 on the 5th of July, which featured an A4000 being used to generate the pictures of the Batsub. Greg Munro of Willoughby, NSW, however, sent us a fax that very day, and so he wins... a mention in the column. I crack myself up, really I do.

Vietnamese Stock Exchange!

Peter Jones of Wellington, NZ, was watching a 60 Minutes report on the reconstruction of Vietnam and saw a shot of a new investment house, containing among other things a man typing on an A1200, with the cardboard box it came in clearly visible.

Close, but no banana

Shane Sodeman of Para Vista, SA mentioned NWS 9 in Adelaide, which uses an animation featuring DPaint morphing (yecch) in the intro to Here's Humphrey. Adelaide public TV station ACE TV regularly shows "Amigamation", which features 2D animations from local primary schools, and apparently will soon be broadcasting "Silicon Motion", which Shane bills as "a professional, Amiga based introduction to the world of animation". Shane also mentioned the Amiga animations on Play School, Lift Off, Sesame Street and Mulligrubs, all of which we knew about but which cast continuing doubt on the viewing habits of Amiga spotters.

We might have given Shane something for this lot (he spotted the making-of-Batman Amiga reference too), but he said the Amiga was used in Babylon 5 and SeaQuest DSV (correct), all the Robocop films (wrong - just an Amiga face on the bad guy in Robocop II) and Earth 2 (wrong - Macintoshes). So Shane gets squat.

Blue striped apron job

Shaun Hastie of Alice Springs, NT, spotted a severely butchered A500 in the Alice Springs Mitre 10. The machine was installed in a custom case with a car radio cassette (!) built in and hooked to the audio in of the Amiga's RF modulator, which by means of wiring or, more probably, a video sender transmitted blocky pictures, text scrollers and so on, backed with the sound of the local radio station, to TVs around the store. According to Shaun, the machine looked quite professionally put together, but as far as I'm concerned it doesn't matter how shiny the bowl is, it's still a dog's breakfast.

Nonetheless, this is a truly off-the-wall sighting, and I'm not daft enough to get a crocodile-wrestling Territorian Amiga user angry with me, so I'll accede to Shaun's request and give the man a free sub.

❑

Drive your CD-ROM *with AsimCDFS*

By Daniel Rutter

I last looked at AsimWare's AsimCDFS CD-driving software in the September 1994 issue, and now it's gone up a version and been considerably enhanced. Beforehand, this was just the easiest to install, most generally reliable Amiga CD-ROM filesystem - far ahead of the fiddly, temperamental PD alternatives. Now it contains quite a number of what I can only call Exceedingly Spiffy Features No Home Should Be Without. It's not perfect, but it's as close as I've seen on any desktop PC.

Time out!

Following is a brief explanation of what AsimCDFS is and does, for them as don't know, and also some other info about the flora and fauna typically found on a CD-ROM. If you're one of them as does know all this, skip to the next heading and continue your perusal of this article.

A CD filesystem is the thing that sits between your CD-ROM drive and your operating system. The filesystem is responsible for making the CDs comprehensible to AmigaDOS, so you can read the files on them, at the very least, and also play audio discs. Good CD filesystems also let you tinker with Photo CDs. Without a CD filesystem, your CD-ROM drive does not work.

Photo CD is a special subvariety of the standard ISO 9660 format CD-ROM. Photo CDs can contain data other than that specified by Kodak, the inventors of the standard, but they have a few features in common. They contain a directory called PHOTO _ CD, which contains a thumbnail image file for previewing the pictures. This directory contains another directory, called IMAGES. This holds all of the Photo CD files themselves, which have to be called IMG0001.PCD, IMG0002.PCD and so on.

Photo CDs were originally, naively, thought to have some appeal to the home market, but since people don't want to buy a $1000 Photo CD player and plug it into the TV to view their happy snaps, they have instead entrenched themselves solely in the professional computer imaging domain. Photo CD is an excellent, well-accepted storage medium for high grade 24 bit images, and AsimCDFS supports it very well indeed.

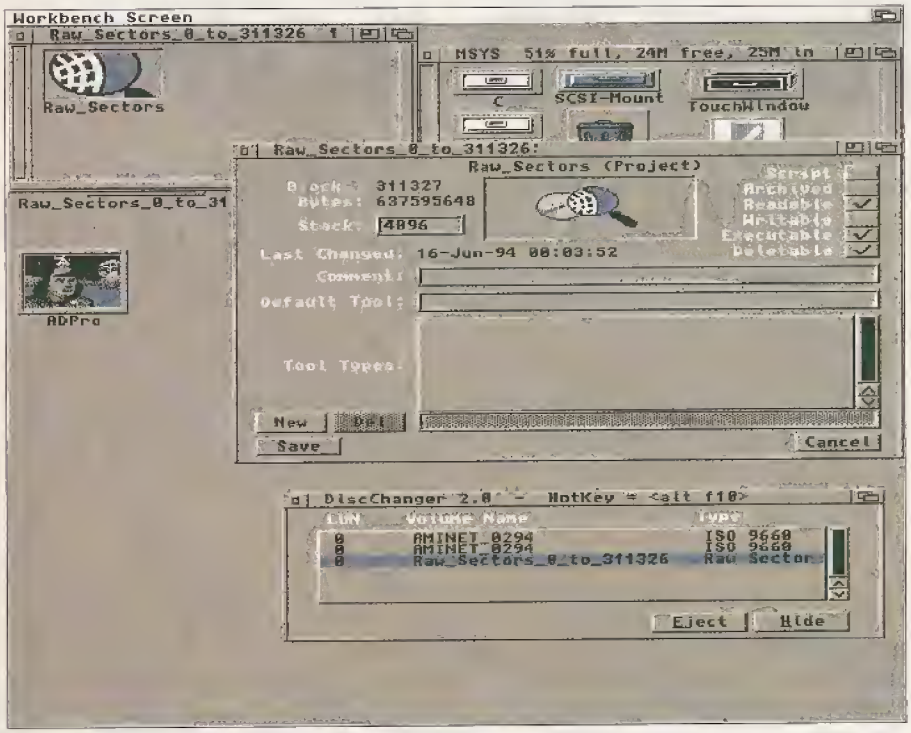
Installation

Installing AsimCDFS is as easy as ever. Naturally, it uses the AmigaDOS Installer utility, and autodetects your drive once you tell it the controller. You can change drive specifications by hand, but I don't know why you'd need to.

A hint as to the capacities of the system is given by the fact that you can install AsimCDFS onto a (suitably expanded) CD32. Now, why would you want to install a new CD filesystem onto a machine which already has CD support in its very hardware? Read on, Grasshopper.

Photo CDs

In days of yore, I was happy enough just reading a Photo CD like any other CD-ROM and loading files from it into a dedicated Photo CD viewer. All This Has Changed now that I've played with AsimCDFS 3.0. It lets you view a Photo CD normally if you're nostalgic, but you can also view it via a funky filesystem tweak that lets you see a device with five directories in it, for the possible Photo CD render resolutions from 192x128 to 3072x2048 (an improvement on its



This file big enough for you?

previous maximum res). Open a drawer and AsimCDFS goes to work, rendering the images as thumbnail icons, which you can select to have as many colours as the screen or be rendered to more or less if you like.

Pretty nice so far - now here's the clincher. The Photo CD images are converted on the fly, as you load them, to 24 bit IFF - as far as your applications are concerned, that's what they are. Forget forever special Photo CD loaders; anything that can load IFF24 can now load Photo CD.

Given this ability, the only reason to view a Photo CD disc the old-fashioned way is if it's been assembled by turkeys who don't know what the Right Way to do it is. I tried out such a disc, which certainly did have Photo CD format image files on it, but had the wrong directory names, the wrong file names and even the wrong disc format - Mac HFS instead of ISO 9660! Now, AsimCDFS has a Force Photo CD option that makes it recognise Photo CDs that aren't quite right - but this one wouldn't pass for a Photo CD if glanced fleetingly from a moving car in the rain at midnight, and it was back to the old way.

The perfect digitiser

Many recent CD-ROM drives can transfer audio data straight down the SCSI or IDE bus. This is a Very Very Cool Feature in and of itself - it lets you use your CD-ROM drive to sample audio CD's with perfect 16 bit accuracy - but Asim's take on the feature makes it even better.

When you stick an audio CD into your CD-ROM drive, you get a choice. You can leave it as inaccessible to AmigaDOS and just play it with the AsimTunes utility (see below), or you can mount it in a different way and have access to each track as a monster file, in several formats. There's CD Digital Audio format in least significant or most significant bit first formats (little-endian or big-endian), the universally accepted AIFF stereo or separate left and right, and even MAUD, the format used by the MacroSystems Toccata card.

Each track file is just that - a file in a directory on a device. Copy it where you want it. Invest in the PD utility SOX and you'll be able to convert your CD sound into any format you like. Groovy.

Of course, this only works if you've got the right flavour of CD-ROM drive. My year-old NEC 3X seemed to almost but not quite support audio transfer. It looks like being the current equivalent to multisession Photo CD compatibility a couple of years ago - nowadays every new drive's got that, and audio transfer ought to follow the same path if it's not blocked by nervous record companies unkeen on the idea of every geek in the world being able to rip off their music willy-nilly.

Playing CDs

There's only one change to the AsimTunes CD player application that I could find. There's an Amiga Audio option, which lets suitable drives (see above) pump the audio data to the computer and converts it to 8 bit Amiga sound, chomping mondo CPU time in the process.

It still lets you build a database of your CDs so you can pick tracks from a list on-screen, the music search still doesn't work on my NEC 3X drive (which evidently doesn't support the command), and it's still quite ugly. Who cares; it works.

Raw Data

Another cool feature. The Asim DiscChanger utility, which is used both to switch discs in CD-ROM stackers and to select different ap-

proaches to a single disc, can optionally let you read raw sectors.

When you do this, Asim does not present you with a dumb sector-editor thingy. It sticks to the lead it established in the audio and Photo CD departments, and simply lets you see the disc as a volume containing one ultra-humungous 600+ megabyte file. Copy the file to hard disk, and you have an image file that can be sent straight to a CD-ROM writer to make you a copy of the CD. Easy as that. You could even move the data straight from CD-ROM to CD-writer, but if one or the other hiccupped and glitched any time in the 60 minute (for double-speed) write, you'd have wasted a $35 CD-R disc.

If you want to manipulate raw sector data, though, you're going to need an appropriately vast blasted wasteland of hard disk space and file manipulation tools that don't gag on an input data stream the size of New Zealand. There's no built in way to extract a small chunk of a disc. Live with it.

CD32 compatibility

There had to be something about this package that didn't work, and the CD32 emulation is it. I've played with CDBoot, a package that aims to do the same thing (CD32/CDTV titles running on an appropriate CD-equipped AGA/ECS Amiga), and it did it really simply. Install, insert disc, reboot, say yes in the requester, bingo.

AsimCDFS's version was more like install, tinker, try, crash, tinker, crash, fiddle, fiddle, read, read, read, guess, crash, etcetera. The Amiga Review Test Team (my mate Mark and I) eventually got Zool running OK, but it was a big hassle and not elegant at all. If you want to run CD32 titles on your 1200/4000 or CDTV stuff on your ECS Amiga, get CDBoot as well as AsimCDFS. In any case, you'll need Workbench 3.1 for best results.

Elderly CD

While I'm whinging, AsimCDFS still comes with the FishMarket CD-ROM in the bundle. Now, this was a fine bonus a year ago, but Fish disks 260 to 1000 are getting rather long in the tooth these days. Could come in handy, but with the Amiga world well supplied with cheap Aminet discs I'm not entirely sure how.

Documentation

AsimCDFS's manual is almost very good. If it had an index and covered all of the program features - like the file buffering system - it'd be great. As it is, it's enough to get you going without much puzzlement, and it contains much interesting technical information.

Overall

This is, almost exclusively, a class act. Nothing else gives you as elegant a way of playing with Photo CDs or manipulating audio CD tracks (there are a couple of freely distributable utilities for audio grabbing, but they're far behind AsimCDFS), and nothing else at all lets you raw-read CDs. The CD booting's not great, the CD player's ugly and the bundled disc has some cobwebs, but this is no big deal. All of the important bits are very well thought out and coded - I shan't go into the mutinae of configuring AsimCDFS and shunting discs about but trust me, it can't get much easier. If you've got a CD-ROM drive on your Amiga, get this now.

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❑

Photo CD interfaces don't come much simpler.

Software Review

ShapeShifter

First Impressions

By Mark Fairbairn

After my Amax IV article last month, I couldn't wait for a look at ShapeShifter, a new shareware software-only Mac emulator available from Aminet on the Internet, and of course subsequently from lots of other places. From the feature list, I couldn't help but compare it to Amax IV, and the registration price is just $US40, compared with probably, well... lots, counting all the upgrades I've paid to ReadySoft over the last few years.

ShapeShifter features

• Up to 256 colors on AGA Amigas (16 colors on ECS) and 24 bit on graphics cards (Picasso-II, EGS and CyBERgraphics cards are supported).

• No MMU required - runs on an A1200!

• Macintosh hard disks can be simulated in Amiga files or Amiga hard disk partitions - though the unregistered version has no hard disk partition support.

• You can use Amiga floppy drives, serial, parallel and SCSI ports from the Mac side - though the unregistered version doesn't support SCSI.

• Mac HD disks can be read directly with a HD floppy drive, Mac 720K disks in a standard Amiga drive - but you can't read Mac 800K disks.

• Multichannel sound output and parallel port sound digitisers supported.

• Text clipboard sharing between Mac and Amiga.

• File handler to access Macintosh volumes from the Workbench - just like PC-Task.

• Speed close to a real Mac with equivalent hardware.

Unlike the original Amax, ShapeShifter won't run on a 68000 - you need at least an 020. If you're planning to emulate a modern Mac on a 68000, you're heading down the wrong path anyway.

Still talking speed, if you're used to one of the older Macs - Mac Plus, Classic, LC or LCII - Amax and ShapeShifter will seem at least as good as the real thing, even on a modest processor. And if you're used to using a Mac with a tiny built-in monitor, Amax or ShapeShifter at least "feels" like a real computer. If you're used to a later Mac, though, you'll need a seriously fast Amiga to keep up using an emulator.

As I don't have ShapeShifter registered, I was unable to access the SCSI bus to create a real partition and was forced to set up a file partition, which makes file access slow - dreadfully slow at times.

Copying the MAC ROMs

The first thing you need to do when installing ShapeShifter is copy the Mac ROMs to a file for ShapeShifter to access.

The Shapeshifter archive contains a utility called SaveRom, which is actually a small Macintosh program which reads and saves to disk an image of the ROMs.

You just have to get this program across to the Mac and convert it from macbinary format; as I already have Amax IV, which comes with quite a good program to transfer files between the Amiga and Mac operating systems, I used this program with the binary file conversion option selected. There are other ways of doing this of course, but this was the easiest and quickest for me.

There are many different versions of the Mac ROMs, which I didn't know until now, but there are several versions that have been tested successfully with Shape-

Fig 1

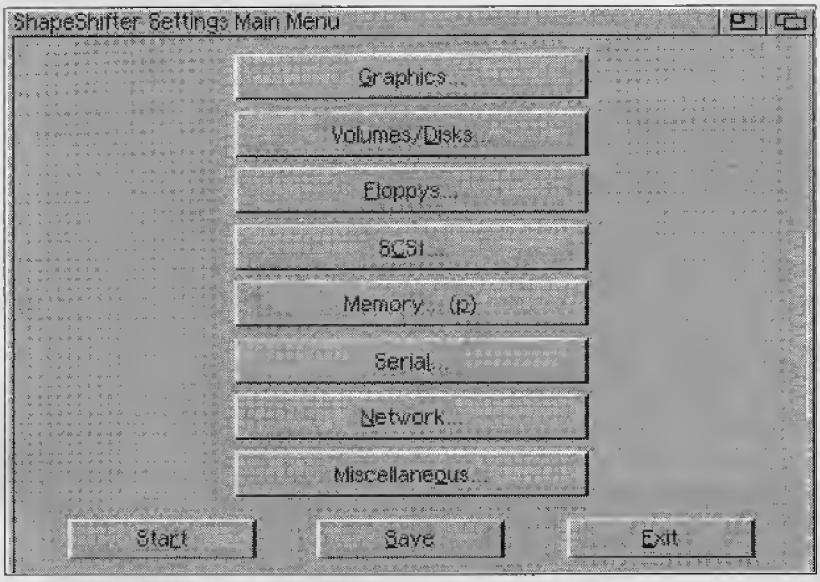

Fig 2

Shifter. I first tried the SaveRom utility with Amax IV running the Mac OS and received the message "Dieses ROM ist fur ShapeShifter NICHT geeignet" (Fig 1), which basically means "try another computer with a different version of the ROM chips." I fortunately have access to quite a few Macs. I found four different ROM versions on the various computers at work, although the SaveRom utility would not work on any of the Macintosh Classics - and the docs didn't say a word about it. I have my own set of ROMS in my Amax card, so there are no legal problems there.

The latest version of ShapeShifter at the time of writing is 3.0b. There have been many bug fixes and additions since version 2; I didn't have much success at all with the previous version.

"You'd haveto be out of your mind not to at least evaluate ShapeShifter."

Comparison with Amax

After loading ShapeShifter you are presented with the options menu (fig 2) where you set up your partitions, memory configuration, serial port drivers and so on. It's harder to get ShapeShifter to work than Amax; you'll definitely need to read the docs to find out what you need to run for your particular computer/CPU/FPU combination.

Despite this, getting ShapeShifter going isn't that difficult. Once the Mac OS is installed, a quick check of the "About this Macintosh.." option shows that the OS thinks it's running on a Macintosh IIci (fig 3).

So far I've tried Claris Works, Ready Set Go! and SuperPaint on ShapeShifter - all worked perfectly. Since I wrote the article about Amax, I've found one program that doesn't work properly with Amax IV - McCAD PCB v3.2. I assumed because it was so old (1987) it was not compatible with the System 7 Mac OS - but it worked perfectly under ShapeShifter.

I ran the same speed test program I did with Amax IV, and received exactly the same results. But this doesn't mean ShapeShifter's as fast as Amax. If

you select more than two colours the system slows right down; the more colours the slower it becomes. If you want colour for your "Mac", be ready for a long wait for screen refreshes. Combined with the slow file partition, this really bogs the system down. If you only use two colours for the Mac screen, I guess you could put up with the file partition if you're not using Mac software a lot.

The big question

Would I buy ShapeShifter or Amax today? Well, I'd definitely register ShapeShifter first to find out how it performs when it's not hindered by the file partition. Colour is just too slow to use (on my 4000/030/882), although the money you save by not buying Amax would go a fair way towards a graphics card! From what I've read on FidoNet, it seems that if you have a graphics card you won't have the speed problem. As I don't have a graphics card, I can't confirm or deny this.

I've also found ShapeShifter to still be slightly unstable, with the Mac OS occasionally falling in a heap. But that could be related to all the junk I have running at the same time. Nevertheless, the author appears to be providing a lot of support and regular updates to his program (unlike ReadySoft) and it is, I believe, worth every cent of the shareware fee. If you're seriously considering Emplant or Amax, you'd have to be out of your mind not to at least evaluate ShapeShifter. It could save you a lot of money if you're satisfied with reasonable speed in two colours or if you're lucky enough to already have a graphics card.

Every Amiga owner should have this program installed on their hard drive, even if it's only to show off what the other computers can't do.

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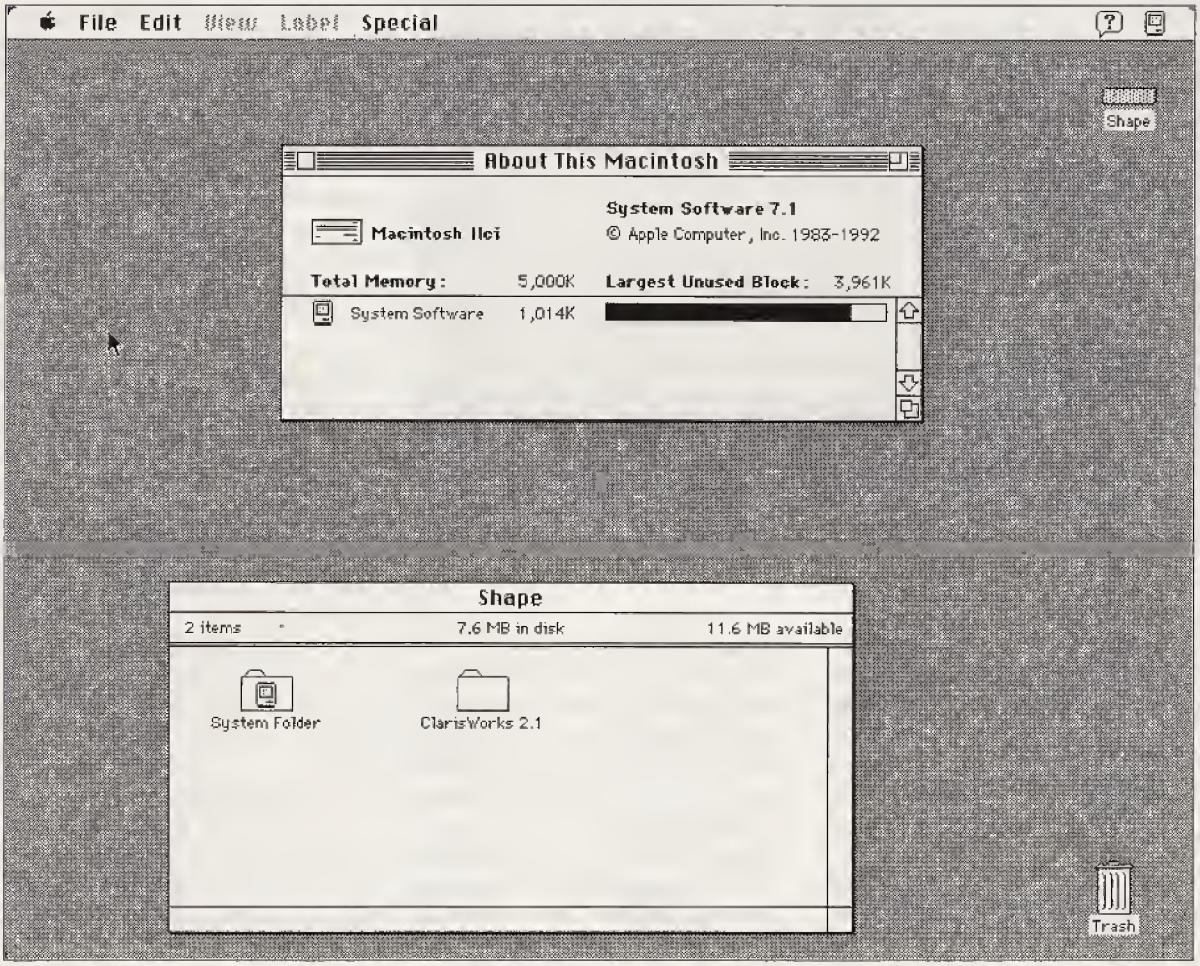
To get your copy of ShapeShifter call Storm Front Studios on (02) 557 4266. ShapeShifter is on 1 disk for $5.

Fig 3



to the editor

DKB Replies

After reading the article by Daniel Rutter, "Budget A1200 Accelerators", I have found it somewhat misleading. First off, Mr Rutter is comparing a "memory expansion board" (RCA120), which is most definitely not an accelerator, to accelerators. As for the TRA1200 and the Cobra 28 (020 board and 030 board respectively), Mr Rutter appeared to have spent much of his review in doing and writing about AIBB's MemTest; while this is a good test to show memory speed, it misreads the effectiveness of 030 cache and burst modes. In real world applications you will generally get best performance with both caches on and instruction burst also on, but MemTest won't reflect this. We are currently trying to contact the author of AIBB to see if we can get this and other problems fixed. One spec does not make a benchmark.

What Mr Rutter should have done was render an image through one of the many animation programs or do an overall test on each board. An end user would be greatly misled by someone just showing them one spec, when as I am sure you are aware, the end users are more concerned with how much faster this board is going to be in their machine!

The Cobra is also capable of loading ROM into fast RAM, which the 020 board cannot do unless the manufacturers provide a special program for the purpose.

I also read that Mr Rutter recommends the TRA1200 over the Cobra because most people don't need more than 8Mb of memory and if you need a SCSI controller the end user can get the Squirrel product. While all that may be OK to Mr Rutter, it may not be OK to the end user who has that board with 8Mb, because any PCMCIA device will take up a 4Mb space, and now that end user has only 4MB - what a loss! It has also been rumoured that the Squirrel is incompatible with the TRA1200, something I would have hoped Mr Rutter had checked out.

Also, DKB is pleased to be able to further reduce the price of the Cobra 28. Please contact your local DKB/Peripheral World dealer for an irresistible deal.

Jerry Prudden,
DKB Software

Daniel Rutter replies: I realise that the RCA120 isn't an accelerator, and nowhere in the article did I represent it as such. But adding fast RAM to your A1200 does make it noticeably faster, and it's been a popular option for cash-strapped Amiga users, so I thought it was a good idea to include it in the comparison to indicate how much more speed you can get for not much more money, now that cheap "real" accelerators like the Cobra and TRA1200 are available. It's been brought to my attention that some misinformed people think RAM boards actually ARE accelerators - they're not. An accelerator has its own Central Processing Unit (CPU) chip, in the case of 1200 accelerators a 68020 or 68030, on the board.

As I said in the article, taking all of AIBB's benchmarks into account the Cobra 030 board was 93% of the speed of the TRA1200 - this is giving all of the tests equal weightings, though. Here, for the edification of the reading public, is the list of AIBB tests, with the winner for each one and the percentage margin it scored. All of the tests are done with 020 math and no coprocessor.
(See Table)

As you can see, the TRA is the winner on 14 out of 20 tests, not just MemTest. But it certainly is far faster as far as MemTest is concerned, and since MemTest measures the efficiency of memory accesses and transfers, I thought it might explain the overall slight loss the Cobra suffered; if the Cobra's RAM subsystem doesn't mate with the processor as well as the TRA1200's, that could explain the speed loss. I certainly did not say that Memtest was an indicator of overall performance; if I had, I would have said the Cobra was half the TRA1200's speed.

I was interested by your assertion

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that MemTest is unfair to 030s, and further tests bore it out. I checked the phenomenon out for myself on a stock 25MHz A3000. Taking the 3000's speed with caches and bursts on as 1, its MemTest performance with caches and bursts off was 1.11 - as you suggest, faster. I got the same result when I had bursts on but not caches. However, when I turned bursts off and caches on, the result was 1.26! While this indeed shows how MemTest fails to accurately represent real world speed, it doesn't entirely account for the TRA1200's 100% faster result.

With regard to your preference for "real world" tests, AIBB's suite of benchmarks contains five that aren't just low-level mathematical twiddles. TGTest and EllipseTest were both won handily by the TRA, it won BeachBall and FTrace by a significant margin, and it won by a hair on EmuTest.

With regard to the TRA1200/Squirrel question, you are quite right and I was quite wrong. If you're using a PCMCIA device and an 8Mb TRA1200, half of your memory will be "covered" by the PCMCIA gadget, and inaccessible. The DKB 030 can access a larger memory space than the 020, and so doesn't have to use the RAM area blocked by PCMCIA. And, indeed, the Squirrel appears to be incompatible with the TRA, which renders the whole question somewhat academic and is a considerable strike against the TRA. Unfortunately, I did not have a Squirrel handy while testing the boards.

The reduced price on the Cobra 28MHz accelerators hasn't yet percolated through to Australia, but Peripheral World (03 9725 3233) says that when it does, they'll be around $20 cheaper.

Test	Winner	Margin (%)
EmuTest	TRA	4
WritePixel	TRA	30
Sieve	Cobra	8
Dhrystone	Cobra	7
Sort	Cobra	19
EllipseTest	TRA	23
Matrix	Cobra	8
IMath	Cobra	4
MemTest	TRA	101
TGTest	TRA	24
LineTest	TRA	20
Savage	TRA	9
FMath	TRA	14
FMatrix	TRA	8
BeachBall	TRA	10
InstTest	Cobra	10
Flops	TRA	11
TranTest	TRA	10
FTrace	TRA	9
CplxTest	TRA	4

Constructive criticism

It's great to see that Amiga Review has survived the "Dark Ages" of Commodore and, now that the takeover is settled, things are looking better for all.

I have been buying your magazine since the mid 80s and in that time have seen a big change in computer magazines. There has been a trend away from catering for the enthusiast/hobbyist, to catering for newer computer users. Many of these new users think of their computers as being another household appliance like a washing machine or VCR, or a status symbol to parade before guests but not use all that much after the novelty wears off.

Amiga Review has generally not been part of this trend, but I feel that some areas need attention if it is to remain as "the" Australian Amiga magazine.

Your recent survey shows that readers have quite a large interest in games. Not surprising, except for the fact that games coverage in your mag has dropped considerably in the past 12 months.

This figure would be much higher under normal circumstances, but I am sure you have dropped a lot of readers who previously enjoyed your games columns.

I know that there are not many new releases lately, but fames fans don't care if a game is old or new and articles on classic Amiga games that are currently available locally would be well received and would increase sales for many of your advertisers, too. Get someone who is enthusiastic and knowledgeable about all types of Amiga games, give them 6 or more pages and watch the circulation figures climb!

If the idea is that games content lowers the tone of the magazine, then consider this - cutting down or excluding programming articles because they appeal to a minority is tabloid mentality.

In fact, if you add up the reader survey results for C, AMOS, Blitz, CanDo and Assembler, it shows a greater interest in programming than in desktop publishing.

Programming articles need not be in serial form. One off articles on how to get started in C or Assembler, info on the lesser documented memory ares and so on would be a good idea.

In the 80s many kids knew enough about programming to at least get a sprite on screen, and magazines like yours played a big part in passing this on.

Devoting space to games and programming gives any computer magazine a more friendly, enthusiastic, knowledgeable and balanced image and goes, I am sure, a long way to ensuring a devoted and regular readership.

Len Kaplan,
Sydney NSW

Ed: You've hit the nail on the head when you say there aren't many new game releases. And when new stuff DOES come out, local distributors for the software either don't exist in any

official sense (local stores import the software themselves) or don't stock the Amiga games anyway, because they don't see the market as being significant compared with far larger PC sales.

I'm not at all sure if people "don't care" about reading reviews of old software, but in any case it's just an academic consideration since old games are, practically by definition, NOT commercially available. There are plenty of "classic" Amiga games - genuine classics like International Karate Plus, F/A 18, Gauntlet, even good old Marble Madness - but you can't buy any of 'em. Plenty of piracy goes on, but we're certainly not going to encourage that. Contrary to the beliefs of some (many?) pirates, copyright doesn't lapse when production stops. Pirating unavailable games, while it may be easier to explain, is still illegal.

Indeed, as you say, if you stick all of the reader survey scores for programming languages together you get a very impressive number. But all of these languages can't be represented by just one column or occasional article - you need a separate piece for each, and generally a pretty big one too, as programming articles tend to come with listings. C coders don't necessarily care about Assembler, and Assembler-heads certainly aren't likely to be overkeen on wussy systems like CanDo.

This very issue of the magazine contains the last instalment of our AMOS 3D tutorial, the last programming tutorial we have planned. That tutorial is nine pages in length. If the reader survey's representative of our readership, only one in five people want to know about it at all - and not all of them have AMOS 3D anyway! Why not use the space for an article more people are interested in - on word processing, or animation, or comms?

Tutorials on getting started in programming are really simple, anyway. Here's one now: "To get started in Assembler, go and buy a book on basic Assembler." There are books on all the popular Amiga programming languages, and they do, in our opinion, a better job than magazine articles could manage. We just don't think a magazine can be all that good at teaching you to code.

Oh, and the layout guys really HATE listings.

Amiga user speaks

I feel it necessary to write to you to express my views on the Amiga situation. I'm 15 and own a Workbench 2 Amiga 500. Having not been in this country for long, as I grew up in England, I am amazed at the attitude that people have about Amiga computers here in Australia. Most people have never heard of them, let alone used them. When I say "Amiga" they think I am talking Spanish, or they think that they are just heaps of junk with no use except for keeping the door open. This is probably because IBMs and Macs are the only real mainstream computers here.

For instance out of 140 kids here in Australia I know 4 Amiga owners. In England I knew at least 10 Amiga owners out of just 28 people, let alone 140. Even though most of these people were Amiga 500 owners and just played games, they loved their machines and would upgrade to another Amiga.

I like Amigas because you can do so much on them for an affordable price. IBM owners I know do two things, play games and a do bit of word processing, this on $3,500+ Pentium systems with the lot. I have an Amiga 500 which is worth no more than $250 with a monitor, and I do everything on it, 3D rendering, desktop publishing, music, digitising and 2D graphics to a respectable quality, and manage to play excellent games as well such as Skidmarks, Pinball Fantasies and Sensible World of Soccer. It may take me a bit longer to do things, simply because of the age of the machine and lack of extra hardware (no hard drive) but I do get to do a wide range of things.

Escom need to get those new Amigas into the shops quick, drop the price of the 4000 to compete with IBMs and have a decent marketing strategy all over the world to boost the Amiga up again. I believe that the 4000 is the computer that can do the most for the Amiga generally, as it is fast enough to be taken seriously as a professional machine and is very expandable. Big software and hardware developers would look towards the Amiga in the future if there were enough professional machines. Wouldn't a company like Microsoft or Adobe be a good thing on the Amiga with all of it's capabilities!

The Amiga deserves to be a mainstream computer simply because of its lovely working environment, and also because of its loyal band of followers. Keep up the good work on the magazine, it looks great!

Chris Putnam,
Eltham, Vic

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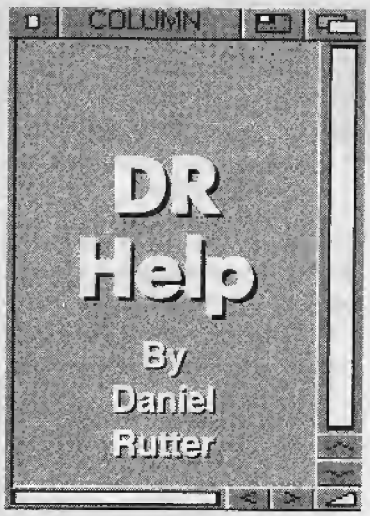


Expanding A600s, Part 38...

I own an Amiga 600 with 1Mb of RAM, and I was thinking of upgrading it. I just read an ad in an Amiga mag that said I could upgrade my A600 to a tower for $US300. This gives me several advantages, such as a detachable keyboard, Zorro slots, room for internal drives and even an internal modem. The ad was in an English mag, and I was wondering when this deal would be available in Australia? Is it worth the money? Is RAM for Zorro slots cheaper than trapdoor RAM? What else can Zorro slots be used for, other than RAM? Can I put a SCSI interface in the tower? Will this disable access to my PCMCIA slot?

What do the OS3.1 chips do? Does it make non-AGA Amigas able to run AGA software? Will there be one made for the A600? Why is the A600 the least expandable Amiga ever made?

Heath Whiteside,
Bangholme, Vic

Dr Help: I've never heard of this expansion box, and I haven't the vaguest conception of how it could connect to the A600 motherboard. You can get A1200 and A4000 expansion towers in Australia - they're rather expensive - but I don't think anyone has plans to import an A600 version. There are various A500 expansion designs, too, which all use the fact that the A500 side expansion connector has all the right wires connected to plug in a Zorro II card and can with extra wiring take several; the 600 has no such connector, so I've no idea what the box does. By the time it got here, you'd probably be paying better than $600 for it anyway, or twice the value of your whole computer and then some, so I'm not sure about the value for money aspect either.

Zorro II slots are the standard internal expansion connectors in the Amiga 2000. The 3000 and 4000 have the faster Zorro III slots, as well. You can put any number of different types of expansion board, including SCSI cards, in a Zorro slot - it's better to list the things you CAN'T put in them. You can't put some video boards in Zorro slots (they have to go in a video slot); neither can you put accelerators in them (CPU slot). I have no idea if the PCMCIA socket would still work in the tower box.

OS 3.1 is just an operating system upgrade - it gives you the latest version of AmigaDOS. It does not change your graphics chips, so if you've got an OCS (Original Chip Set, the oldie) or ECS (Enhanced Chip Set, a bit better) machine, it'll still be the same underneath - just better packaged. You can put OS3.1 into your 600 - you need the Amiga 2500 3.1 pack.

And the A600 is the least expandable Amiga ever made because Commodore felt they had to do something about the embarrassing popularity of the A500.

A2000 expansion 1

My trusty 1988 A2000HD has an A2630/68882 accelerator, 1Mb chip and 6Mb fast RAM (2Mb on each card - accelerator, hard disk controller and 8Mb RAM expansion board), OS 3.1, 52Mb Conner HD, 170Mb Quantum HD and 1084S monitor. Question time.

Can you run AGA software using a 24 bit graphics card (Picasso II) and improved monitor with a 2Mb DKB MegaChip board and OS 3.1, or is an A1200/A4000 the only way?

What type of RAM do I need to fill up the 8Mb RAM card (it's a standard Commodore card)?

If I get a DKB MegaChip, can I have more than 9Mb fast RAM?

Will there ever be an AGA upgrade/video card (zorro II slot?) for the older machines? Will a third party ever design one?

Shaun Hastie,
Alice Springs NT

Dr Help: If you're running software that uses screenmodes properly, and your graphics card also works according to Commodore spec, then you can run programs on graphics card screens for 256 colour or even 24 bit displays. So, for example, running your word processor on a 256 colour graphic board screen should work fine. You don't even need a 2Mb chip RAM expansion - graphics cards have their own graphics memory on board and so 2Mb of chip becomes largely irrelevant. A better monitor's a must, though.

Unfortunately, AGA games generally don't stick to specification - the bad old days of non-DOS hardware-bashing games are far from gone - and there's little chance of them working.

A "normal" A2000 can't have more than 9Mb of RAM, but you'll be pleased to know that your machine isn't normal! The standard A2630 could only take a maximum of 4Mb of RAM. There was, however, an expansion board made by DKB that plugged into what's usually referred to as "the funny looking connector" on the later model A2630s, and let you add up to another 112Mb (!). Good luck finding one of those boards, though.

If you can't get a DKB expander, taking the A2630 to its 4Mb plain RAM maximum (the DIP RAMs it uses should still be

available, and pretty cheap) will give you 9Mb overall in your current configuration - but half of your fast RAM will be only 16 bit. You want 32 bit RAM for your accelerator to run at maximum speed; at the moment you've got 2Mb of it on the accelerator itself, but if that RAM gets filled your machine will suddenly start running much slower.

For a more elegant and expensive solution, you could scrap your RAM board, accelerator and hard disk controller - with RAM on 'em you'd be able to get a few pennies for them, even the RAM board - and grab yourself a second hand GVP Combo board from somewhere. You'd have a faster SCSI controller, a faster CPU, room for 8Mb of 32 bit RAM (on those annoying GVP SIMMs), and a couple more free slots. You existing drives would work fine.

If you get a MegaChip board, your fast RAM limit stays exactly the same, but you've got an extra megabyte of chip RAM under it. Of course, as I've said, if you get DKB's old 2630 expander, you can have tons and tons of fast RAM.

Making an AGA upgrade card for older Amigas is like putting a V12 engine into a Morris Minor. It can, theoretically, be done, but by the time you've done it all you've really got is a facade with all new machinery behind it. This is why nobody's ever going to do it. You can get a 24 bit graphics board for your 2000, and that's as good as it's going to get.

A2000 expansion 2

I have a pretty stock A2000, and I've decided to upgrade. The problem is, where do I start? I understand that there is something in the Feb '94 issue about upgrading a 68000 CPU to a 1200, so I ordered that. But I'd still like some first-hand advice as to the first steps I should take. I've got a standard 7MHz 68000 processor, 52Mb SCSI hard drive, 1084S monitor and two nearly dead floppy drives.

Mathew Maher,
Albany WA

Dr Help: The article in the February 1994 Amiga Review was about the experience of scrapping one's old 68000 machine and buying a 1200 - not transforming an old Amiga into a new on. That's not possible.

After disappointing you with that, you'll be pleased to know that I do have some useful advice. If Shaun Hastie decides to switch to a Combo board you could buy the stuff he takes out of his machine, but otherwise a Combo board could work for you too. If you're into pennypinching and classified-scanning then feel free to get a RAM board and accelerator separately, but a one board solution saves a lot of hassle. You could certainly do with a bigger hard drive - with 500Mb drives under $500, you've got to be a pretty poor computer hobbyist to be stuck with a 52Mb. You can, of course, keep using the 52 when you get a bigger drive - just as well, since you'd be lucky to get $50 for it.

Also consider getting a flicker fixer and compatible monitor - a Commodore A2320 display enhancer board should be dirt cheap if you can find it, and a cheap VGA monitor (and many nicer models) will work fine with it, giving you twice the screen resolution without the dreaded jigglevision. If you can't find an A2320, a Flicker Free Video board will cost more but do the same thing.

Upgrading A500

I have an A500 with WB1.3 and a 2Mb memory upgrade (2.5Mb total), and I'm thinking about upgrading to Workbench 2 or higher. I have a few questions about it before I decide which Workbench to go for.

1) I know a lot of people rubbish AmigaBASIC, but I find it easy to program and easy to debug, so it suits me. I know that AmigaBASIC is a program like any other, but I'm not sure if it's compatible with any or all of the Workbenches above 1.3.

2) If I can use AmigaBASIC with the higher Workbenches, what resolutions will I have?

3) Would I be able to run A600 or A1200 programs if I upgrade to the same Workbench version?

4) I have a switch which enables switching between 512K and 2.5Mb RAM; would it be possible to switch between Workbench 1.3 and a higher Workbench?

5) I know that without knowing what programs I have it's difficult for you to tell me if I can run them on higher Workbenches. Nonetheless, are some Workbench versions more compatible than others?

Squiggle Hilton (well, that's what it looks like on the letter),
Arana Hills Qld

Dr Help: As far as I'm concerned, people rubbish AmigaBASIC because it's rubbish. I feel safe in saying that nothing worthwhile has ever been written in it. AmigaBASIC's a Microsoft product, and was obviously foisted on the Amiga community by Bill Gates to hobble the superior machine. If you must use it, it'll work on higher Workbenches pretty much just as it does on 1.3 - just move the files over - but please, please consider using a better BASIC, at least - Blitz, AMOS, anything. Please.

If you upgrade to Workbench 2, you can run Workbench 2 software. The A600 has Workbench 2 as standard, but there's no such thing as "A600 software" per se; the set of software that runs on the 600 is contained within the set that runs

on any other Workbench 2 Amiga, and it's rather smaller.

The A1200 is different. It runs Workbench 3, and you can get WB3.1 for your machine, but you don't have the AGA chipset and so programs which require the new AGA graphics modes will not work. Other software, though, will work fine; many applications can use AGA screenmodes if they're available but work fine, but with fewer colours, otherwise.

You certainly can switch Workbench versions; you need a ROM switcher board, available for $50 or less from various Amiga dealers.

The compatibility issue pops up whenever a new AmigaDOS version arrives; essentially, AmigaDOS has lately been getting better and better at running most of the software most of the time. There was a pile of 1.x stuff that died on 2.0, and every time an upgrade comes out there are a few more programs that fail to function, generally because the programmers didn't write to correct AmigaDOS spec, but overall 3.1 works with more stuff than 2.04 did.

Absolute beginner department

I am a comparative novice, and desperately need your help. I have an Amiga 600 with external floppy drive and extra 1Mb RAM card. I thought I was good with written instructions, but confess I cannot follow the supplied Workbench 2.1 User's Guide well enough to create a file. I get as far as Edit and produce what I want to save, I even get the response on screen of "WRITING TO FILE XXXX" when I click on OPEN, SAVE or SAVE AS, and then absolutely nothing happens, whether or not I have the target disk inserted, whether or not I try to write/copy to and from RAM. Obviously, there is something I am doing/not doing. Can you please help me before I give up in frustration and do nothing but play games?

Dr Help: For a start, it looks like you're using Ed, not Edit - Ed-it is the horrid line editor AmigaDOS comes with, which no homo sapiens has ever used. If you've managed to make Ed say "writing to file..." when you click Open, you're really remarkably talented, but I'll overlook that too.

How do you know "nothing happens"? If Ed says it's written to a file, it has. Try closing Ed and opening the file again - type "ed", then the name of the file, making sure you're looking in the right directory. If Ed says it's making a new file, that means the file you asked it to open genuinely isn't there, either because it wasn't saved or because you're looking in the wrong place.

AmigaGuide answer

T. Grant of Semaphore, SA, might like to know that yes, it is quite easy to include coloured text in AmigaGuide documents, The following command sequences are used:

@{fg ‹colour›}

sets the foreground colour for text, and

@{bg ‹colour›}

sets the background. ‹colour› is any of the following keywords:

text (text pen in Palette Preferences)
shine (bright edges)
shadow (dark edges)
fill (active window titlebars)
filltext (active window titles)
background (background)
highlight (important text)

Unfortunately, you can't select a specific colour, like red. You have to stick with one of the above standard Intuition pens. And it only works with the v39 and later editions of AmigaGuide (the one that runs through MultiView).

If you're, looking for the full, official AmigaGuide distribution with all the above information and more (including a darling little thing called a "transmogrifier"), it's on Fish disk 870.

Darren Foster,
Seaview Downs SA

Absolute Beginner 2

Will you please (preferably in words of one syllable) explain how to make a Read Me file. I wish to put this into DPaint version 4.1. I use Directory Opus 4 (it frightens the hell out of me) and CygnusEd. I have an A2000 with 2Mb chip RAM and 2 fast running WB2.1.

Also, is this machine worth expanding with an accelerator?

F. B. Brownlee,
Auckland NZ

Dr Help: Make your text file with CygnusEd, and save it where you want it with whatever name you like, after setting the Icon Creation option in the first Environment menu to on (ticked). You'll now have a file with an icon, and the default tool ":ced", which is not very useful. Click the icon once from Workbench and select the Information option from the Icon menu. Change the ":ced" in the Default Tool: box to the name of some other text viewer - in a default setup, use the Commodore viewer More.

In answer to your second question, your machine certainly is worth accelerating - see the previous questions from A2000 owners! It's just a matter of what you can afford.

❑

Directory Opus Update

By Daniel Rutter

Since I looked at the latest version of Directory Opus, in the May 1995 Amiga Review, the program's been updated to v5.11. It's an update worth having.

Whaddaya get?

Opus now comes with two extra packages created by third party developers. There's an Opus 5 version of LhADir, which lets you use archives like directories in every respect, including adding and removing files - though you have to set up separate archive file operation buttons for this. The buttons are included with the package, of course.

Another spiffy inclusion is a load of Magic Workbench icons for Opus buttons and devices, so Workbench narcissists can make their dirutil blend in with the rest of their onscreen decor. The icons are nice, but there are also some fonts included which are excellent examples of why you shouldn't try to be clever with an 8 point typeface. As with all Magic Workbench stuff, you need to be running at least an eight colour screen for these new buttons to look any good.

In the minor feature department, the inbuilt PLAY command can now do basic SoundTracker modules. If you're not using Opus as a Workbench replacement, you can make the Opus screen the default public screen. There's also a new FULL switch for the DeviceList command, which expands the Assign list to show full paths for assigns.

Opus's first-class drag and drop features have been expanded further. You can drag a destination drive window onto the destination selection requester, and drag and drop lines around in one function editor or from one editor to another - you can even drag a whole function between editors. Similarly, you can drag menu items around in the list and not have to use the clumsy Move buttons to move menu items about. You can drop files onto a Program Group icon to add them to the group.

ARexx users will be happy to know there are a number of enhancements in this area - command options to strip filename suffixes for renaming purposes, custom handlers to trap button events hooked to internal commands, a flag to put quotes around filenames sent to custom handlers, and more. Again, nothing revolutionary, just refinements.

Little bits

There's a smattering of other minor changes - there's an internal beep command you can use for notification purposes, you can optionally display non-DOS disk icons, there's a Skip All button in the copy function, you can customise listers more extensively, and there are nearly 50 other minor improvements and bugfixes. Just about any one of the big list of fixed bugs is negligible by itself, but together all this polishing makes Opus 5.11 a considerable step forward.

This is not, however, a must-have, rush out today sort of upgrade. Let's face it, Opus 5 was well enough tested that it didn't come out with anything drastic missing or broken. But, by all means, grab the patch disk, or download the upgrade from Aminet or your online service of choice. Well worth having.

Contact Small-Biz Software on (074) 919 190 for more information.

❑

Phase 5 CyberStorm

68060 Accelerator

By Daniel Rutter

Phase 5 is the company that makes the 68060 boards which will, according to Amiga Technologies, be fitted to 10,000 of the 25,000 A4000Ts in the first production run. But you can buy the 060 boards over the counter today, and with one you'll have the fastest Amiga ever, full stop.

We checked out a CyberStorm with some real world tests, and the results speak for themselves.

What it is

The CyberStorm 68060 board, from the same people that brought the world the Fastlane Z3 SCSI-II controller and the Blizzard series of accelerators, is the cutting edge in Amiga accelerators. It only works with an A4000 - it doesn't physically fit into A3000s or the few old model A4000Ts - and it packs a 50MHz 68060, the latest and greatest of the 680x0 family and also the last completely new processor of that family Motorola will ever make. Faster clocked 060s are in the pipeline (up to 80MHz), but the chip will stay otherwise the same.

Fantasy numbers

The 50MHz 68060 is said to be an 80 MIPS (Million Instructions Per Second) processor, but that's not a very meaningful figure. For rough comparison, a stock 25MHz 68040 A4000 clocks in around 17 MIPS and a 40MHz 68030 machine scores less than 6 MIPS - but none of these numbers mean anything much, since they're created from superfast twiddling of tiny instructions, which if they fit inside the processor cache execute insanely quickly. This is not what happens in real applications.

While I'm on the subject of pretty but meaningless numbers, in IBM-clone-speak the internally clock-doubled 060 would be described as a 100MHz unit. But since it only talks to the computer at 50MHz, that's the real clock speed. A PC clone 486DX4/100 has a 25MHz motherboard, but the CPU runs at 100MHz.

Expansion

The CyberStorm is not just a processor board. The whole design is modular, which means considerable future expansion's possible.

As it stands today, you get the main carrier board, which fits in the A4000's 200 pin slot where the 030 or 040 normally lives. The CyberStorm stands vertically, instead of lying flat. A high-tech POCWGWOI (Piece Of Card With German Words On It) insulator is supplied to stop the carrier shorting onto the A4000 riser card.

Into the carrier board plug the CPU and RAM boards. These give the standard CyberStorm an impressively complex look and an easy expansion path. Nothing should need to be changed for different CPUs - just plug and go.

The memory board has 4 standard 72 pin SIMM sockets, which take ordinary single or double sided 60nS SIMMs (more expensive than the usual 80nS, but not the stratospherically expensive superfast RAM wanted by some turbo processors). You can install up to 128Mb, in any mix-and match combination of 4, 8, 16 or 32Mb SIMMs you like. Again, you won't need to trade all your RAM if you upgrade to an 80MHz processor; the CyberStorm architecture means it runs really really fast with 60nS RAM and shouldn't need anything faster, ever. There is a maximum speed at which data can be pumped

to and from the non-CPU portion of the A4000, and the CyberStorm's already there.

Going beyond the basic package, there's an optional SCSI module, which supplies a Fast SCSI-II interface, and there's an I/O Module with an Thin/Standard Ethernet networking controller and a high speed (2 Mbaud) serial port. The SCSI interface, partially based on the Fastlane Z3, is billed to support up to 10Mb/S transfers with minimal CPU load, and it's got active termination, so you don't have to fiddle with jumpers or those danged resistor packs. It comes with a CD-ROM filesystem and the DynamiCache disk caching package.

If you don't want networking but wouldn't mind a low CPU load superfast serial port, you can also get a cut-down serial-only I/O Module. But if you do get the network option, you can install a network boot ROM that lets you boot from a network hard drive.

Future possibilities

Still on expansion, there's an as yet unused connector on the CPU Module which gives direct processor access, intended for use with, for example, cache memory and extra processor boards (Digital Signal Processors and so on). Boards to fit the connector are planned for release this year.

And 68060 isn't necessarily the end of the line for CyberStorm, either. Although nothing concrete has been announced, phase 5 have foreshadowed CPU upgrades for the CyberStorm with more powerful processors - maybe a PowerPC, maybe some other RISC unit, who knows. It depends on what the Amiga operating system ends up supporting, and with the current close cooperation between phase 5 and Amiga Technologies, complementary development seems likely.

Testing

The most annoying feature of the CyberStorm was its incompatibility with Amiga Intuition Based Benchmarks (AIBB), the ubiquitous and very useful Amiga speed tester. Everything else worked (well, everything that worked on 040, anyway), and thought it was running on a suspiciously quick 68040. But AIBB spat the dummy on startup every time. I might have been able to get it running by choking the 060 back to 040 speed, but that defeats the purpose. I actually downloaded an AIBB module made by someone who had apparently done just that, with no coprocessor or trans-68000 code tests done, and the 060 lost to the 040 on a number of tests. Yeah, right.

Bereft of useful benchmarks, we moved on to real world tests. Compared with a 40MHz 68040 (Warp Engine) A4000, the machine used by Jarrod Pudsey for Amiga and PC Review covers and various other rendering, the 68060 Amiga was, consistently, about twice as fast. We also tried doing a Professional Page colour separation, and the CyberStorm clocked in at about 1.8 times the 40MHz 040's speed - the lower figure probably because of the large amount of disk access happening.

Phase 5 has also done extensive speed tests on the CyberStorm, and they found that for AdPro operations the 060 delivered from two times (for a graphic-intensive rendering operation) to better than four times (for maths-intensive convolutions) the performance of a stock 4000/040.

Their rendering figures for Scenery Animator and Imagine 2.0 both showed a speed advantage of better than 300% over the 4000/040, and a Lightwave render went better than 4.1 times faster.

Is it for you?

If you're a speed freak, you've probably already got a 4000 with a 40MHz 040 in it. If so, the CyberStorm means you'll be paying $2600-odd to make your machine twice as fast; a Warp Engine costs around $2300, but it's got SCSI built in as standard.

If you've got a slower 4000 - a 25MHz 040, or even an 030 - the CyberStorm offers the most bang per buck in hairy-chested accelerators, by a wide margin. Budget-conscious buyers could stick a big IDE drive in the 4000, or live with a slower SCSI card, and hence not have to shell out for the CyberStorm SCSI. The network and serial options are icing on the cake.

On the other hand, if you're a renderer looking for a honking fast image-maker, just picking up a 90MHz Pentium box for about the same money as the CyberStorm board alone is an attractive prospect. Unfortunately, you then have to buy the rendering software for the IBM compatible - LightWave for the PC costs $1300 - but you end up with two machines, so you can model on the Amiga while the PC pumps out the pictures. Swings and roundabouts, swings and roundabouts.

If you've been looking at workstations for your power computing needs, the CyberStorm in your Amiga gives you as much clout as a seriously fast workstation of less than two years ago, for maybe a tenth of the price - if that. From that viewpoint, $2600 could be lost down the side of the couch.

With bleeding-edge products like this, and such a plethora of different buyer situations, it's impossible to make a hard and fast recommendation. But the CyberStorm is very fast, seems very well designed, and costs surprisingly little. If only it ran AIBB.

Contact Sigmacom on (02) 524 9846 for more information.

❑

NEW on the NET

More local content.

By Daniel Rutter

Welcome to another in our occasional series of Nifty Net News - what's new, what's interesting, what's lame in the rapidly expanding world of online services. On with the show.

CompuServe cheapens

Big news for current and prospective CompuServe users is more price reductions for users of the organised Internet alternative - which now offers Internet access as well.

The peak time rate for basic services is now $12 an hour, with extended services $18.60 an hour. Call at the off-peak times and you'll pay just $7.80 an hour for basic services.

Internet access, at any time, now costs $9.60 an hour, or $6 an hour for the first three hours each month; if you're a regular netsurfer you can join the Internet Club and pay $6 an hour all the time.

There's also a free trial period for new members - join CompuServe now and basic services will be free for the first month! Contact Fujitsu Australia on (02) 410 4260 for more information.

Let your mouse do the walking

The Australian Yellow Pages listings will shortly be accessible via the World Wide Web. The paper version's not bad, but with a digital version you'll have the equivalent of a business WHite Pages as well - you can search by type of business, location, name of business and so on.

Well, you WILL be able to, anyway. At present, The site is still very much under construction - there are unconnected buttons, and the listings only include most computer companies, restaurants and takeaway shops in Melbourne, Brisbane and Sydney.

Somebody involved also apparently thinks a form should have all of its fillable boxes and their explanation text on one monster line. But never mind - the idea's a beauty, and it should be working soon.

Interestingly, the Yellow Pages press release came with a technology excerpt from the Yellow Pages Small Business Index, a comprehensive survey of businesses with 19 or fewer staff. This contained some revealing data about small business users and their interaction, or lack thereof, with the Internet.

Only 71% of the surveyed businesses had a computer at all, and only 30% had a modem (though another 15% plan to buy one in the next year). When it came to the Internet, 29% didn't have a computer, 14% plan to connect, 5% are already connected, 6% didn't even know what the Internet was and 46% percent weren't connected.

The most interesting part was when the people who didn't want to connect were asked why. 67% of businesses saw no business benefits - in which they could be right, depending on their need for outside information, global communication and the other services Internet connection can provide. A compuServe account can be a much better idea for business users.

40% of non-connectors were concerned about hackers, which is odd; if you get yourself an Internet account and call a service provider, you can't be hacked. The service provider can, and if they're singularly incompetent they may let the hacker have your credit card number. Personally, though, I'd be

Top to bottom: *1) All you ever wanted to know about environmental policy. 2) No good can come of this. 3) One of the milder things the AGD guys did. 4) Hey, bookshops aren't meant to be glamorous.*

more concerned about spontaneously combusting in my sleep.

36% of non-connectors sensibly suspected the Internet would incite their staff to waste time. 36% didn't know how to connect, an easy enough problem to rectify if you browse the ads in a computer magazine. Another 36% just weren't interested. 35% didn't think they had the skills to use the Internet, which might well be true, but using the World Wide Web certainly isn't rocket science.

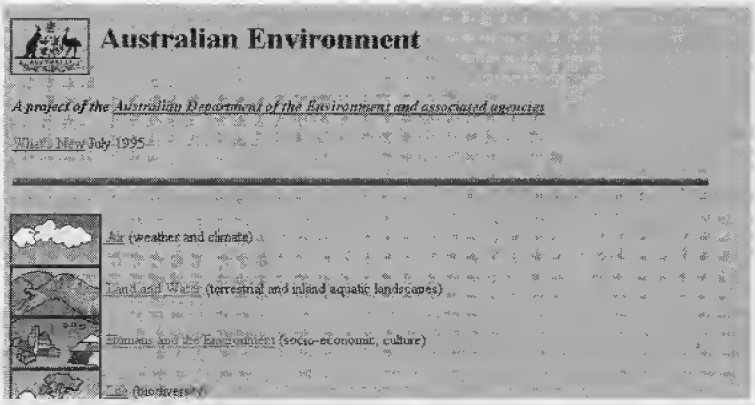
28% thought the equipment was too costly, which is quite reasonable, and 25% thought the connect time was too costly - though I reckon your business has to be pretty marginal if it can't carry another $10 a week.

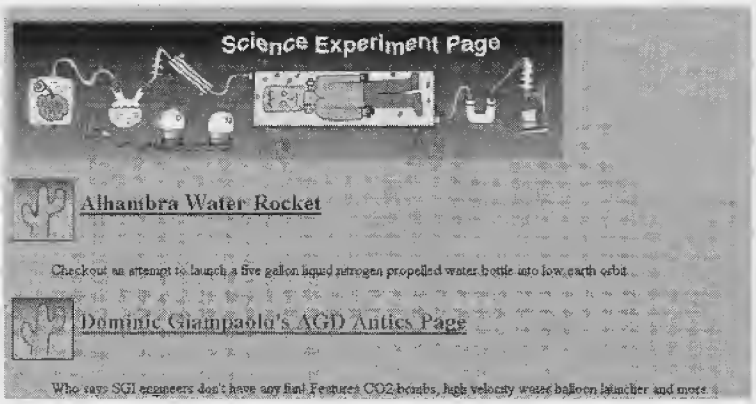
Green government

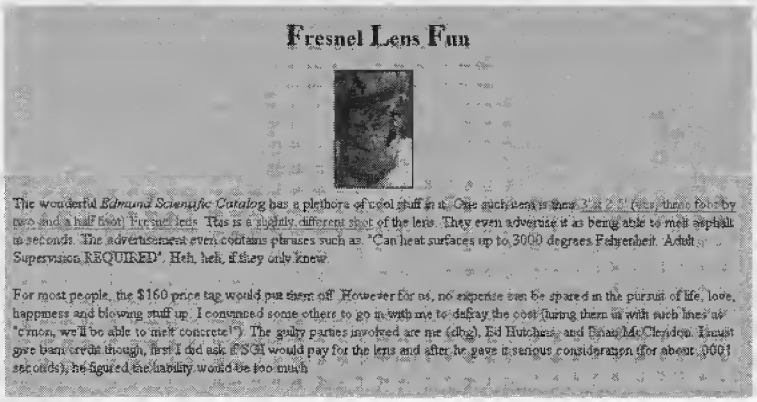
People who want to see what the Australian Government makes of the Internet should check out http://www.erin.gov.au/, wherein lurks a ton of information on environmental preservation, and the government policies behind it. It's a forest of databases, maps, models, documents and government and other contacts, of enormous utility for any greenie who wants to see what the pollies are doing in that direction.

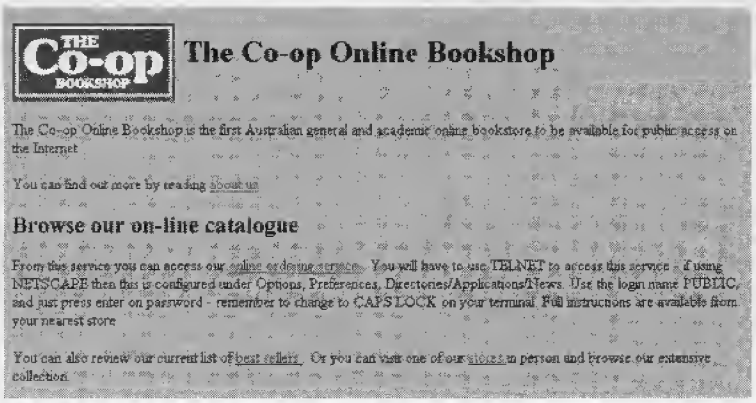
Warm and fuzzy

Fans of all that barks, miaows and cheeps will find helpful information at http:// www. petnet. com.au. PetNet is the first Australian World Wide Web site for pet owners, and though its information is rather thin compared









with non-domestic sites, it does feature Australia-specific information about your cat and its effect on native wildlife, where to get pets in Australia and so on.

Presently, PetNet covers yer basic dogs 'n' mogs, with information on popular breeds and so on, but pages on rabbits, guinea pigs, birds and fish are coming. Owners of miniature pigs, robber crabs and Belgian warhorses will presumably have to wait a little longer.

Cyber Co-op

The humble University Co-operative Bookshop, with more than 45 branches on uni and TAFE college campuses across the country, now has a web page. Find 'em at http:// mail. coop-bookshop. com.au.

Now, when you join the Co-op for $15, you're a member for life - but they won't be able to find you after you leave uni, move house a few times and go all normal. No matter - now you can find them, without traipsing back to campus. From the web page you can place orders for books, software, CD-ROMs, tapes and CDs; there are 350,000-odd titles to choose from.

Very very well done

Right, that's enough worthy self-improving stuff. I know what you're thinking. You're thinking "where can I go to see pictures of an eminent scientist, famed for inventing a drop-in non-ozone-depleting replacement for CFC refrigerants, lighting a barbecue with liquid oxygen?"

Glad you asked.

The event in question, best described by the word WHOOMPH, is visible at http://ghg.ecn.purdue.edu/, with JPG pictures, movie and sound files, and handy do-it-yourself instructions for people who fancy spending the rest of their lives wrapped in bandages.

A note - don't bother downloading the enormous sound file - it's lousy quality and the all-important conflagration's hopelessly distorted.

And another note, of course - this sort of stuff is for entertainment purposes only. You can go to a public library and learn how to make nitroglycerine, but that doesn't make it a good idea. This guy's a professional maniac. You're probably not. Disclaimer concludes.

More insanity

I got to the thermonuclear barbecue area from the AGD Antics and Mayhem Page, at http:// reality.sgi.com/ employees/ dbg/ antics/ . This shows all the peculiar things those nice chaps at the Silicon Graphics Advanced Graphics Department (that's right, the guys that do Serious Movie Animation) get up to when they're bored.

You know, carbon dioxide bombs, a Surgical Tubing Slingshot that could be used for economical satellite launches, obliterating objects with a giant Fresnel lens, bungee-ing backup tapes and microwaving CDs.

I've done that last one myself, and can highly recommend it, but don't blame me if you kill your microwave oven. Naturally, there's lots of text, lots of pics and quite a few movies for people who have superfast connections or superhigh patience.

Twinkie terminators

I followed a link from AGD's Pages O' Insanity to another site, which impressed upon me the arid desert that is Australian junk food culture.

We do not have Twinkies here. I have seen them on TV, but have never touched one. The guys at http:// www.rice.edu/ ~gouge/ twinkies.html, however, have not only touched them but have tested them to destruction, in order to determine, once and for all, the precise physical characteristics of the cream-filled, unnervingly long-lasting snack cake. I can only presume that these particular university students have altogether too much study time on their hands.

Tests assayed include the Rapid Oxidation Test, where unsuspecting confections were subjected to a dousing of isopropyl alcohol and subsequent incineration, the Solubility Test, in which the unnerving discovery that Twinkies instantly swell tom twice their size upon immersion in water was made, the Density Test - oh, you get the picture. It's silly.

Too weird

http:// reality.sgi.com/ employees/mark/ science.html is where you'll find the page that inspired the other SGI maniacs. The highlight here is the Amazing Alhambra Liquid Nitrogen Rocket, a device which employs one of those big spring water bottles, quite a lot of hot water, some liquid nitrogen and some twisted ingenuity to make something that sensible people will only view on their computer. The mind boggles, really it does.

From the home office...

In the "calculated, profitable insanity" department, there frontrunner is indisputable. So I hied me over to the Late Show with David Letterman home page at http:// www.cbs.com/lateshow/ lateshow.html.

There you'll find a handful of small, crummy pictures, a complete Top Ten archive with the last Top Ten on the home page, special info on Dave's recent trip to London, Tonight's Guests for whatever day you check it on and a fair

number of pictures of Dave Letterman's distinctive geeky but extraordinarily wealthy countenance.

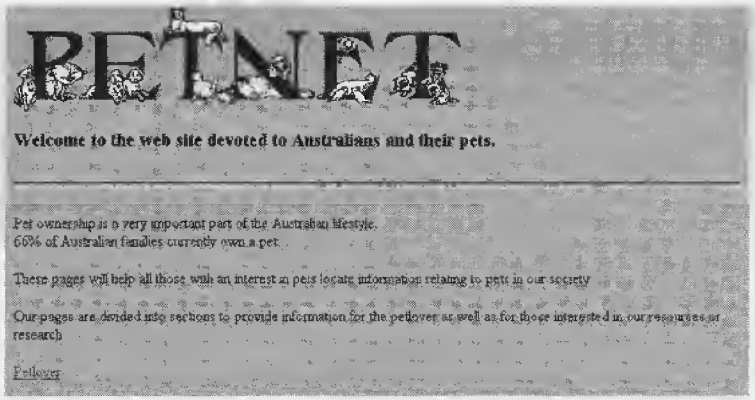
This, however, is the OFFICIAL home page. The UNOFFICIAL page is, naturally, where it's at. Find it at http:// bingen.cs.csbsju.edu/ letterman.html, and enjoy way, way more stuff, including plenty from the old Late Night show on That Other Network, and all those things Dave would prefer we forgot (like Madonna's memorable recent interview, and so on...).

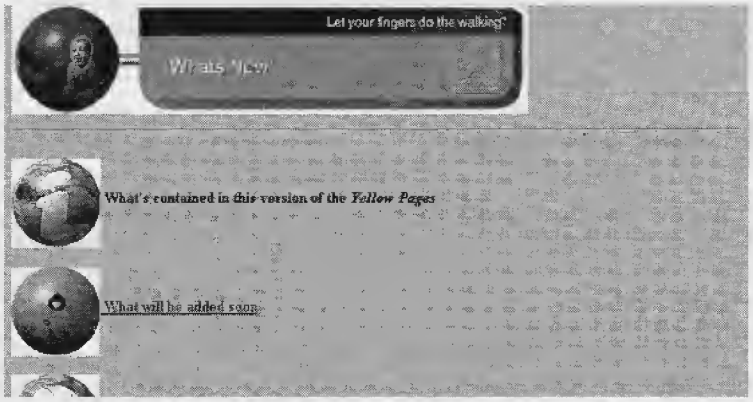
Cyberbore

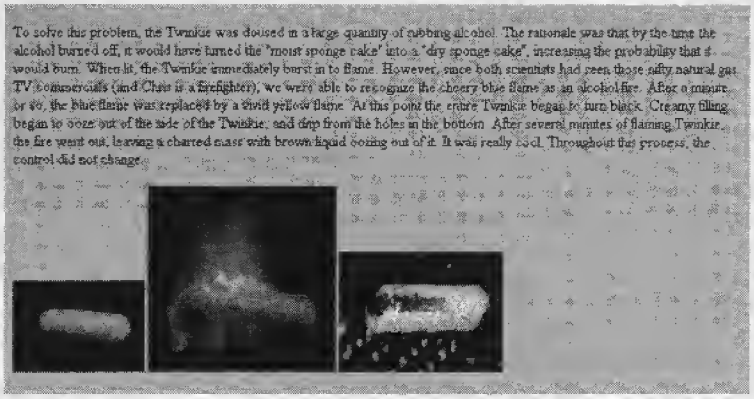
A company revelling in the name Rana Futuristic has opened Adelaide's first "cyberbar"; located at the Central Pizza Bar on Hindley Street, it's a decorated enclosed computer terminal which provides access to "Wild Palms", Rana's "private version of the Internet."

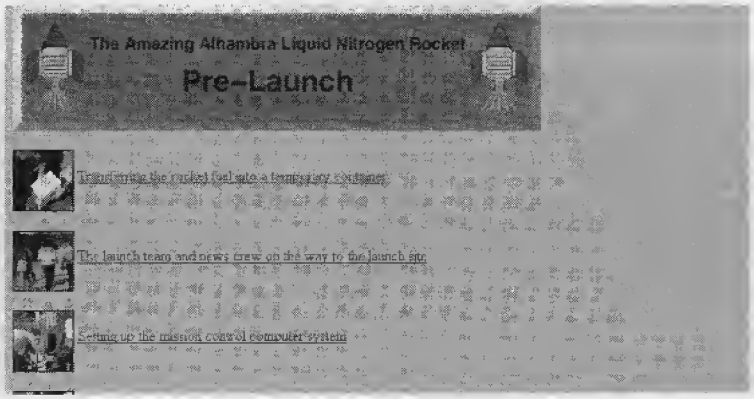
This is a bit like advertising your balsa wood version of a main battle tank, and since the major attraction is listed as the online game LORD - also accessible via many FidoNet bulletin boards from the privacy of your home - I can't help but wonder what exactly they're thinking.

❑









Top to Bottom: *1) PetNet - some useful local info. 2) Yellow Pages online - almost. 3) Twinkie test - dissolution of Western society, exhibit A. 4) On the way up: Naah, if you locked 'em up they'd just blow up the jail.*

Desktop PUBLISHING

Better Clips

A tutorial in tracing.

By Andrew Farrell

Thanks to the advent of CD-ROM, clip-art is easy to come by in such vast quantities that even if most of it is rubbish, there will always be enough good stuff to justify wading through the collection. The trouble is, most clip-art is bitmapped - which simply means it's made up of a whole bunch of dots, or pixels.

For many applications, bit mapped clip art is acceptable. You can use it in most wordprocessors, all desktop publishing software, paint programs, and in some 3D modelling and rendering programs. However, if you're serious about creating graphics that are flexible, can be scaled to any size, and will reproduce at the best possible quality, the way to go is structured clip-art.

Instead of an image being described as many individual dots, a structured clip contains a metric explanation of the shape, describing it in terms of lines, curves and fills. On the Amiga there are two popular programs for working with these types of clip art - Art Expression and our old favourite, Professional Draw.

Creating a clip from scratch can be very time consuming. Often you have the image you need as a bitmap image from a scan, or existing clip art. The good news is, there is a way of turning a bit mapped clip into a structured clip that is a real time saver.

Tracing

The idea of tracing a bit mapped image has been around for a long time. In the early days the bitmapped image could simply be loaded into a structured drawing program and you then manually traced over the image - a time consuming and often inaccurate procedure.

However, recent programs have all included a trace utility that does the hard work for you. Simply feed the program a black and white image, and after a bit of processing, out pops a structured clip, that with a bit of tidying up, is ready for day to day use as a scalable, high quality, clip.

Let's take a look at the necessary steps using Gold Disk's Professional Draw program.

1. Scan, draw or find an image suitable for the job. The example image was originally drawn by hand, and then scanned on a low cost desktop flatbed scanner.

2. Clean up the image in a paint program to get rid of any stray dots and touch up any spots where the original has any defects. Save the final clip in as a few colours as possible - in this case it's a black and white image, so I saved it as a two colour image. You can trace colour images successfully if each colour is solid. Complex patterns do not work well.

3. Now run your trace program.

In this case I'm using the Gold Disk utility, which despite the dated interface, still performs as well as some of the more recent alternatives in the latest Windows packages.

• The first requester is the name of the original bit mapped image. The second is the name of the clip file you want to create - a single clip file can hold many clips - which is why the next requestor is the name of actual clip itself.

• The fit is important here - if you have a really bad scan that you haven't had time to touch up, choose a greater fit. The bigger the fit, the bigger a variation will be need to cause a new line to be generated. This is also useful on very complex images. For most images you'll want the fill option on - switch it off if you want a line version of the solid areas of colour.

4. Once you've successfully traced, run Professional Draw and choose the Clips, Draw option. From the file requestor, choose your newly traced clip and then stamp it down on the work area. At this point you'll probably notice the trace program has placed a frame around the outside of the image and that there are a few odd bits that need fixing.

5. With the clip selected, choose Object, Ungroup. Click once off the object, then click on the bits you want to delete and simply remove them by pressing Shift-Delete. Once you've trimmed away any unneeded extras - including that annoying frame - use the bounding tool to select all the parts of the object, then choose Object, Group.

6. Check to see the object looks right by switching off wireframe. If any areas are filled that should not be you can either fill them with the right colour manually, or try the Object, Make Compound Object function - which makes objects behave like a donut. If you have

Using the original bitmap is fine at small sizes, however the quality starts to deteriorate the larger you go.

two circles selected, the filled area will be between them, and the centre will be transparent.

7. If you're working with a colour clip you must also check the colour definitions ProDraw is using - the default names after a trace is created from the RGB slider settings and are pretty meaningless when you get the clip back into Professional Page, Pagestream or Pagesetter.

8. Finally, select the entire clip and choose Clips, Define. Give the clip a name, then choose Clips, Save. You're now ready to use your converted bitmap clip as a structured clip.

Where can you use it?

The finished image is saved as a Professional Draw clip file. If you're using Art Expression, you can also save in a number of other formats. For us in a wordprocessor like Wordworth, you will need to save as a EPS (Encapsulated Postscript file). Professional Draw can print to EPS, whereas Art Expression saves directly into this format.

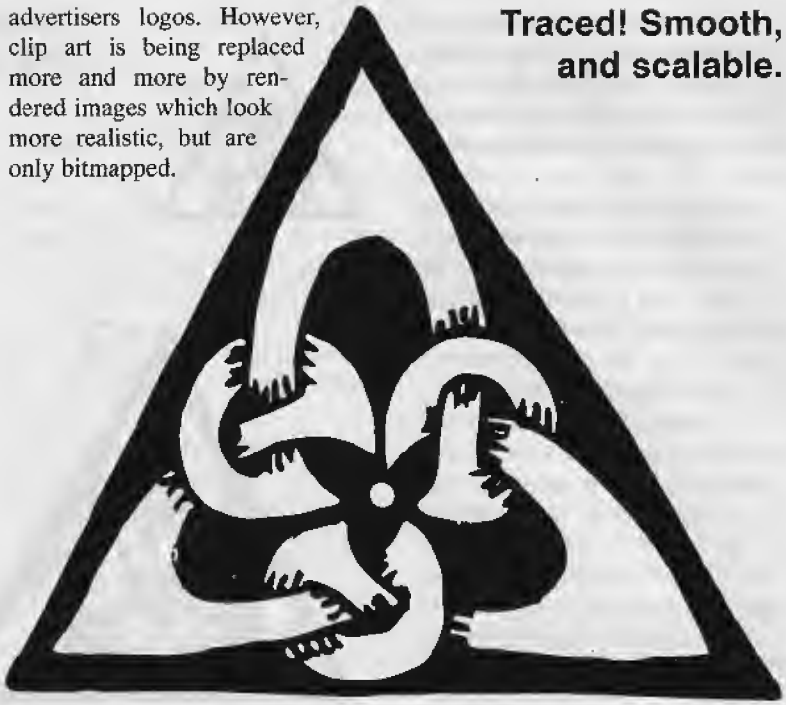
The latest version of Wordworth displays EPS files on screen and can print them to any printer, even if they don't have postscript. Unfortunately, Professional Page displays EPS files as a solid grey box, so you're better off leaving the file as a clip.

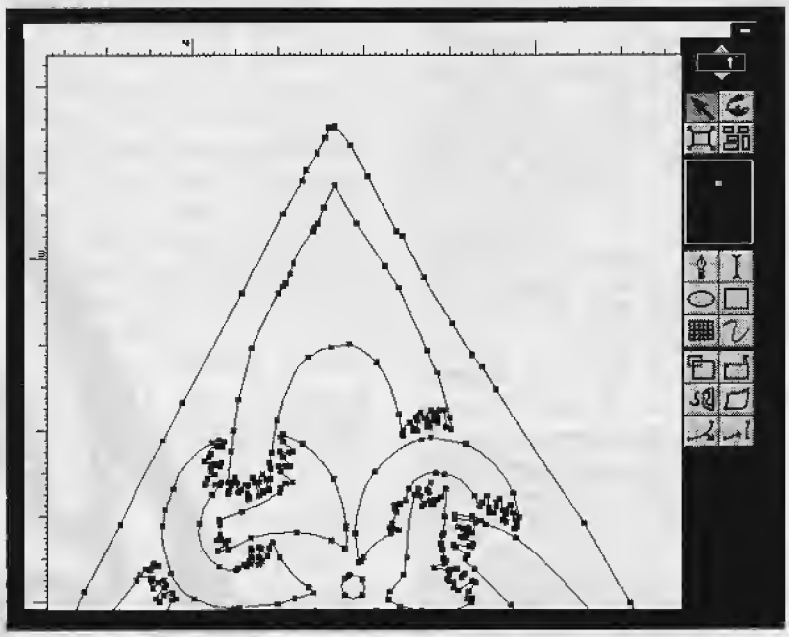
Clip art has many other benefits over bitmapped images for small logos. You can define transparent areas, which no Amiga DTP program can do on a bitmapped image.

You can also see clip art in Professional Page in full colour without having to use an AGA machine, or switch to a high colour mode.

All the logos on the pages in Amiga Review are Professional Draw clip files, as are many of the advertisers logos. However, clip art is being replaced more and more by rendered images which look more realistic, but are only bitmapped.

Traced! Smooth, and scalable.





Inside Professional Draw you can see the way the traced image has been defined as many lines. The solid blocks are control points that make it possible to alter the lines and curves. Some images may benefit from having redundant points deleted - they'll render faster and print quicker.

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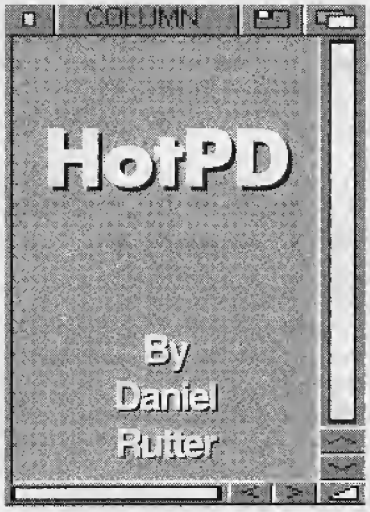


KeyMod

This program's just downright nasty. It's a typo generator. The faster you type, the more likely KeyMod is to change the character you've typed into the character from a key to the left or right. Slow right down, and every keystroke will be perfect. The person who wrote it should be given a medal and then locked up.

If someone torches your car because you put this program in his startup-sequence, don't blame me. You need Workbench 2 to destroy your life by running it.

MUIResi

Another special-interest program. Do you occasionally need to decode resistor colour codes? If you never do, this is not the program for you, and if you often do, you probably won't need it, but if you dabble in electronics here's a handy little ready-reference thing that'll save you dipping into the back of the Dick Smith catalogue. You need Workbench 2 and the MagicUserInterface (MUI) installed to use it.

Scout

Do you like to chop a great big hole in your operating system, climb inside and twiddle with all of the dangly bits? If so, Scout is the program for you. As the accompanying gobsmacking screenshot suggests, there's not a lot Scout won't let you poke your dubiously educated nose into, and if it can be changed, it can be changed with Scout, and even via ARexx if you're feeling really clever. You can view and frequently tinker with assigns, devices, expansions, fonts, input handlers, interrupts, libraries, locks, memory, mounted devices, ports, resident commands, residents, resources, semaphores, tasks, vectors and windows.

Naturally, Scout has the potential to bring your system down in a steaming heap - any low-level Amiga tweaker has that potential - but used wisely it can be very useful, for everything from basic task priority twiddling to chopping out rogue input handlers, zapping server interrupts, hunting new viruses, unloading libraries, killing interprocess ports, terminating unwanted screens and windows, removing locks to "unuse" a file, grabbing or releasing semaphores, changing memory priorities - you get the picture. If you're the kind of person that wants to be able to grab programs where it matters and show them where you know they ought to go, you will quiver with joy over Scout.

The manual's pretty basic, but if you're already proficient you'll be able to use the program. You need both Workbench 2 and the MagicUserInterface to use Scout.

Triumph Body Pics

Regular readers will know I'm not a great fan of dress-up-your-Workbench software; I'm of the opinion that if all you've got to do with your time is make your computer prettier, you should get out more. But anything that inspires this much sudden and dramatic enthusiasm among the Amiga Review production staff has to be mentioned to the world. These pictures are designed to be shown behind a standard eight colour Magic Workbench-type Workbench.

Program complexity (bonus points if you get THIS one!):
☆ Boobah
☆☆ Archbishop Posey
☆☆☆ Lord Julius
☆☆☆☆ Suenteus Po

They fit the standard MWB palette, and you can hence use them on AGA machines or ECS ones running NickPrefs. There are six pictures, they are very well done with exquisitely nice dithering of just the three grey shades in the MWB palette - it takes some skill to make a picture look good with just three colours - they're full overscan, and... I'm sure there's something else about them I should mention...

Oh yes. They're of nubile girls in swimsuits or lingerie.

Form a queue for the companion disks, red-blooded technodweebs. Mop up your own saliva, do not trip over your tongue.

Scorched Tanks 1.85

Any sickos out there who don't like Artillery clones can now move to the next item, because Scorched Tanks has had an upgrade and, as always, I'm going to tell the world.

I still prefer Charr (mentioned three months ago), but Scorched Tanks is a perfectly good game and it's now a perfectly good game with 10 more weapons for your little tank to hurl at all the other little tanks. There's now tunneling Moles, the explosive-rainstorm Cascade weapon and its relative the Pineapple, the Elevator (lifts the area it hits), the Sunburst flash weapon, the octuple-bracketing-bouncer Crazy 8's, the Minigun and Tommygun with both fire a sequential spread of nasty little bullets, the Shield Disarm, the Reflect-O-Dome that builds you a bouncy dome to fend off attacks, and two flavours of MIRV.

This makes a new total of 70 weapons, each more preposterous than the last. I'm pleased to say the music's been improved, too (it used to suck like a black hole in a wind tunnel), and the graphics have had a mild workover too. If you like Artillery games, check this one out. If you don't, consider a career as a chartered accountant.

Phenomena

The author of this little program was inspired to create it by the weird cover Jarrod Pudsey did for the August 1994 Amiga Review. Its purpose is to draw lightning and particulate explosions. It does both using a quite good algorithm, and you can use it purely for entertainment or to make images or animations to include in other productions. The unregistered version doesn't save animation frames, but you can still see what it does and decide whether it's worth the $US20 the author wants. He's Australian, but he's got an eye for the main chance. You need Workbench 2.

VirusZ

Since development of BootX has greatly slowed - it's officially still alive but under new management - John Veldthuis' Virus Checker is probably the most popular Amiga anti-virus program. VirusZ's got to be right up there, though; it checks bootblocks, RAM and files (of course) and the latest version (1.20) recognises 303 bootblock viruses, 198 file viruses and 35 link viruses.

The Amiga virus scene's not nearly as lively as the PC one, because Amiga users tend to use virus checkers more and notice when their machine screws up in funny ways (unlike PC users, who usually don't notice one more weird crash); keeping up to date with your virus protection will keep it that way. Insert anti-AIDS motto of choice here. You need Workbench 2.

AMosaic guide

Amiga Mosaic is not the cutting edge in World Wide Web browsers, but it's the best we've got. This is a hefty and tolerably well written guide to the program, hooking up and performing tasks, which covers the different versions, installation, getting running, customising it, hints and tips, interesting pages - you get the picture. Judging by the number of help calls I've taken about the Amiga Review Internet Disks (I'm no guru, but I'm the closest thing to it in the office!), quite a few people could use this.

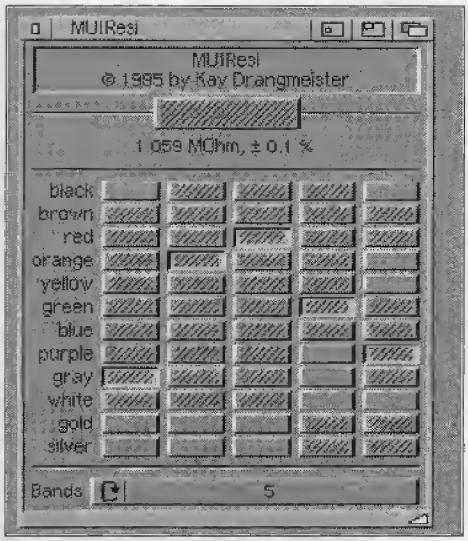
Disk Protector 2

Here's a tricky one. It's another worthwhile product of a coder who's dragged himself out of the cracker culture, and it ought to annoy his brethren no end.

Disk Protector allows you to put copy protection on disks - specifically non-DOS disks, since it stops hardware and nibble copying programs, not DOS file transfers. There's an exhaustive description of the way the copy protection works in the documentation, but the upshot of it is that a protected disk will probably copy OK from the drive it was protected with, and in any other drive with a close motor speed, but not anywhere else. It's a cool concept, it can't make pirating easier, and it's small, so it's on the companion disks.

Datatypes

A few more datatypes for you Workbench 3+ types. There's a BMP one that supports 1, 4 and 8 bit BMP, in OS/2 1.x, Windows 3.x and OS/2 2.x formats - though still not compressed or 24 bit. Never mind; most BMPs are 256 colour uncompressed.



The remarkably exciting MUIResi.

There's also a basic TIFF datatype which shows v5.0 24 bit TIFFs as 8 bit dithered, but doesn't do much else - no compression, no true 24 bit viewing, no chunky mode. Hey, better than nothing.

If that's not enough, I've thrown in a Targa datatype that does straight viewing of TGAs up to 8 bit, and views 15, 16, 24 and 32 bit Targa images as HAM8.

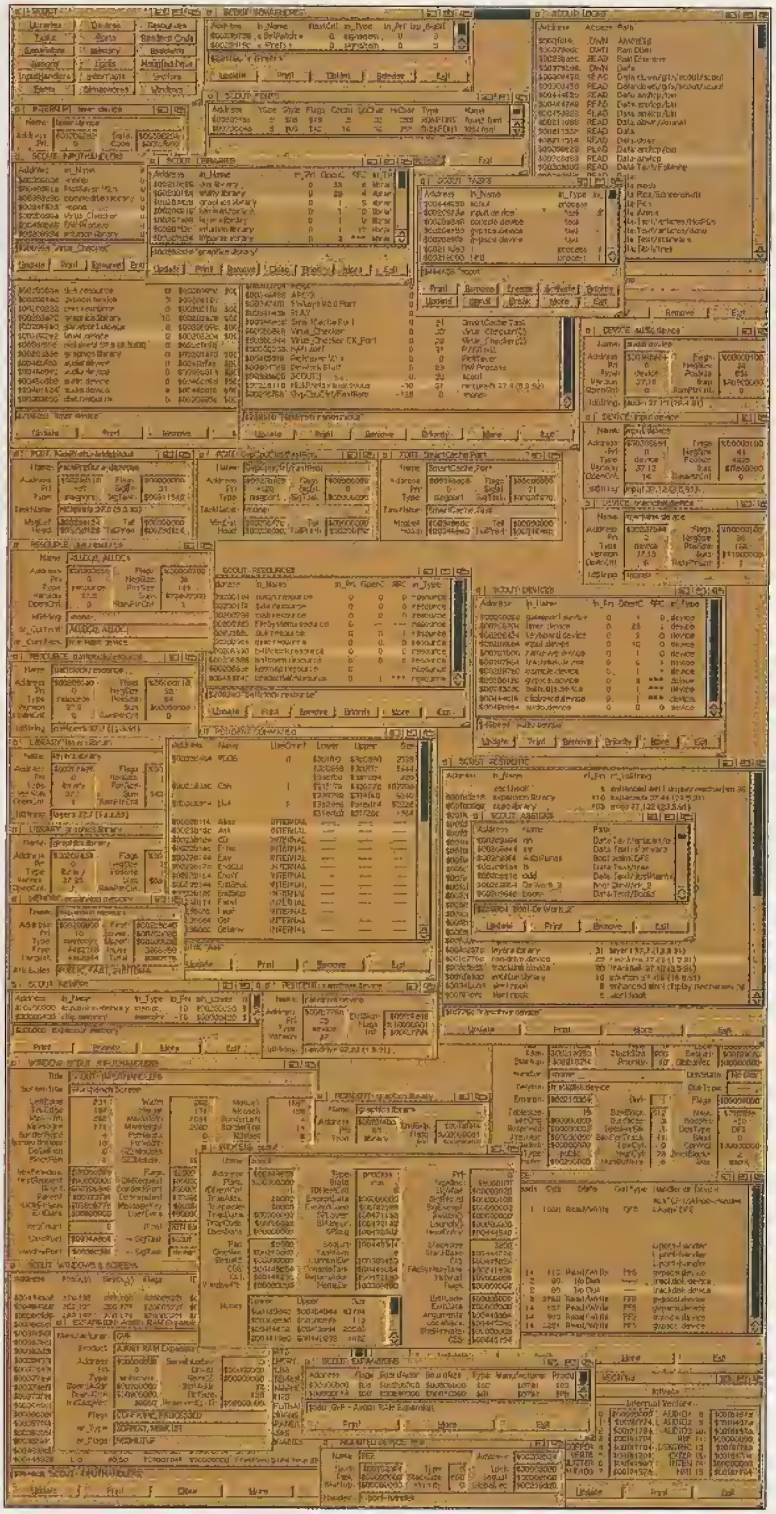
WBTitle

I'm so ashamed. It's another system-tweaking program. Sorry.

This one lets you put whatever you want in the Workbench title bar. You know, "Bad Ass DudeBench 1.0, A600 Rules Forever" Big deal.

Fortunately, it also lets you keep and enhance the RAM display, by putting text around it (stick with me here, it gets better) and by displaying not just chip, fast, available and total but also virtual memory and memory on the Retina board which you of course have. You need WB 2.

Aw, shaddap, there was some spare room on the companion disks, OK?



Scout. Hardly any functions at all.

Crock of the Month

I hope to make this a regular segment, celebrating the essential lousiness of a considerable portion of the PD and shareware world.

PowerBall

"Great new Breakout game!" said the file description on Aminet. Cool, thought I, I'm always in the market for one of those.

Upon playing it, though, I must admit I'm at something of a loss as to what, exactly, is great about it. The chimp-got-at-DPaint colour scheme? The lousy collision detection (ball passes through brick...)? Perhaps the way it pauses whenever anything changes direction? No, I've got it, it's the way you can only bounce the ball off a bat in one direction - as long as it doesn't get confused, buzz inside the bat for a quarter second and then plunge off the screen.

PowerBall does have a gimmick. You can have up to four paddles - one on each side of the screen. Now, if the paddles were capable of bouncing the ball either way, it could be quite cool. As it is, it's very very sad indeed.

Oh, it's in German, too.

Almost all of the software in this article - is on the companion disks, as always. Ask for them by name; they're HotPD26 a and b, a steal at $9.50 the pair including postage from Prime Artifax on 1800 252 879 - and remember, kids, this time there's girlie pictures, too!

The inimitable PowerBall is not on the companion disks, or on any other disk I'll ever compile, and Scorched Tanks is the size of a cow and so gets a whole disk to itself (ask for Scorched Tanks 1.85, $5 by itself or only $4 if you order it with the companion disks).

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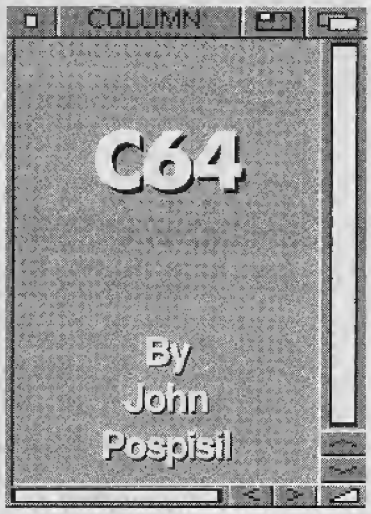


The C65 - a computer that almost was

The Commodore 64 was one of the outstanding success stories of the computer industry in the 1980s. It started out more advanced than any of its competitors, and as time marched on the massive C64 software base and low pricing helped it to more than 12 million sales around the world.

With success like that, Commodore needed a new product to replace the C64 once it had reached the end of its life. Of course, as we all know, Commodore bought out a small Californian computer company developing an amazing games computer, which turned out to be the Amiga. The first Amiga - the A1000 - was very expensive, costing over $4000 at its launch in Australia. A cost-reduced version, the A500, was launched soon after, and at around $1000 was affordable enough for home users.

Amazingly, despite the introduction of 16 bit Amiga technology, the C64 continued to sell. It was pitched at the lower end of the home market and bundled with GEOS; it was almost like a stripped down version of the Amiga. Commodore tried to kill off the C64 several times, but public demand resulted in a stay of execution. Even when Commodore finally put the C64 to rest in the late 1980s, rumours persisted for years after that the Commodore 64 was still being produced under license in third world countries - and ESCOM's recently added fuel to the fire by foreshadowing legal action against unlicensed users of Commodore patents!

When the C64 was finally scrapped, Commodore had a problem. Though the Amiga was getting cheaper, it was still not considered capable of filling the gulf left by the C64. Commodore executives felt there was room for a machine beneath the base model Amigas. Engineers at Commodore's US research and development labs in Westchester were, at the end of the 80's, given the task of coming up with a replacement for the C64 - the C65.

The C65 may have become part of the Commodore mythology (along with the US-designed Amiga 2000 which Commodore management rejected in favor of a cheaper German design) had it not been for the liquidation of Commodore International, and the subsequent auction at its Westchester site. Bidders at the auction were amazed to find C65s up for sale.

Different reports suggest that there were either about 50 or up to 1000 of these machines produced, though the lower figure seems more likely. The machines offered at the auctions were no mere prototypes; they were "alpha" pilot-production models. Apparently, Commodore CEO Irving Gould pulled the plug on the project at the last minute - about a month before project completion. Whether this was the right decision, no one will ever know.

What we do know is that while the C65 was being developed, so was the Amiga 600. Perhaps the 65 was not cheap enough to compete against the A600, and it was felt that a souped up C64 would simply confuse the market. Despite the fact that the C65 never made it to commercial production, it does have a small and devoted following. At least three C65s have made it to Australia, and there are enough users for there to be at least three Internet sites catering for the C65.

The C65

To put it simply, the C65 was a turbo charged and fairly compatible version of the C64 - software that bashed the video chip hard, which was a lot of it, didn't work on the new machine. Looking like a cross between the A600 and the C64c, it featured a 77 key keyboard and a built-in forward-facing 3.5 inch disk drive (1581 format). The central processing unit was a turbocharged version of the 6502 - the CSG65CE02, running at 3.54 MHz. Graphics were improved to 320 x 200 in 256 colours, 640 x 200 in 16 colours and 1280 x 200 in four colours, all true bitplane modes, with an 80x25 text mode with bold, underline and blinking attributes, and the 65 also supported all of the C64 graphics modes. Interlace modes were also

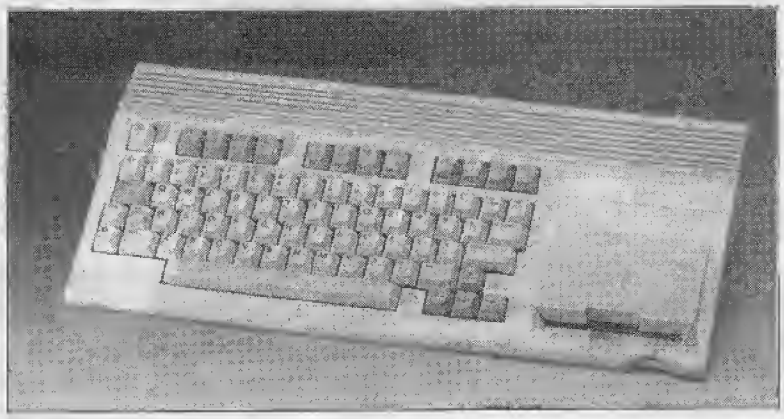
The Japanese 64

Did you know there was a Japanese version of the C64? The Ultimax was launched in 1982, about the same time as the original Commodore 64. There were three versions, including the Max, Unimax and Ultimax. The Ultimax was billed as a third generation games machine, and featured 2K of RAM (not expandable), BASIC on a separate cartridge, and a membrane keyboard. The Max was even more stripped down and had no keyboard, and only an expansion port and video out plug, but it did have 16K RAM. The Max computers were never very popular, and most ended up being sold in Japan.

available. Sound was boosted with twin SID chips for stereo capability. Standard memory was 128Kb expandable to 8Mb.

Not much software was written for the C65 (the cartridge port doesn't even accept C64/128 carts), and if one should happen to break down, it would be functionally impossible to find the parts to repair it. Despite these limitations, the C65 is definitely a collector's item, and will always be the subject of many "what if..." conversations.

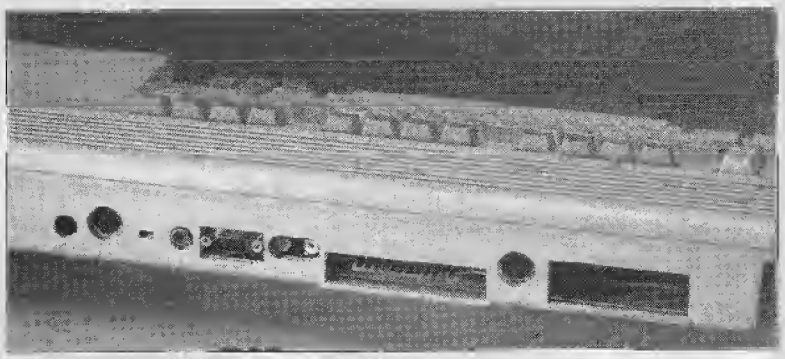
❑



Australian almost-ran computers

It's not only Commodore that designed computers and then pulled the plug on them at the last moment. Australia had its very own computer designer and manufacturer in the 1980s: Microbee Systems. Microbee Systems achieved a lot of success with its 8-bit computers. They were used by schools world wide, and even had a following in the home market.

Like every other computer company in the mid 1980s, Microbee knew the future of computers lay in 16-bit technology, so it too developed a graphics-based 16-bit computer. Computer magazines reported on early prototypes of the Microbee Gamma, and were impressed with its graphics power. Unfortunately, management became worried that the project wasn't viable, and stopped development. Computer folklore has it that when one of the senior engineers found out that the project had been cancelled, he took one of the prototypes and smashed it on the managing director's office table. Yes, a few Gamma computers did survive, but like the C65, there was little software ever written and their practical use is nil.



A carttridge slot - but not quite a C64 one...

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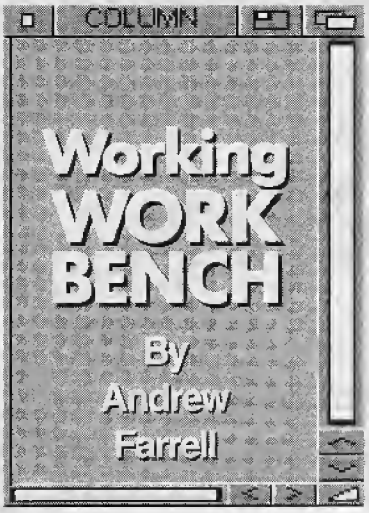


A new monthly column for people who put their Workbench to work running major producivity applications.

For many years I have been irked by people who categorically state that there is no good business software for the Amiga. True, there may be better programs on other computers, but you'd be very hard pressed to get anything as good as we enjoy for the money.

This column is dedicated to covering programs which we used to call productivity titles - program that do real work. Wordprocessors, fax programs, database software, spreadsheets and the like. I'll be sharing tips, providing updates on new versions, and generally chatting about how to make all the Amigas best business tools work together.

Faxing

In our office we have been faxing directly from our computers for some years. It's amazing how many people don't. If you constantly find yourself printing out a page only to fax it and toss the page away, you definitely qualify! If you're also concerned about how well your business image converts into fax, sending documents directly from your desktop makes good sense. Faxes transmitted from your Amiga will look much better than faxes sent through a regular fax machine.

For Amiga people, there are only a handful of good fax programs. The most popular is GP-Fax. Although there are many things GP-Fax doesn't do that I wish it would, it has a powerful AREXX interface that makes possible a few nifty tricks.

A short while back I knocked up a contact manager in CanDo. The reason for this was that I could not find a program on any computer that could do a fax merge.

Today there are several on the PC, but they're quite expensive. With GP-Fax and my CanDo program I managed to fax merge a three page letter design on Professional Page with over 300 names and addresses.

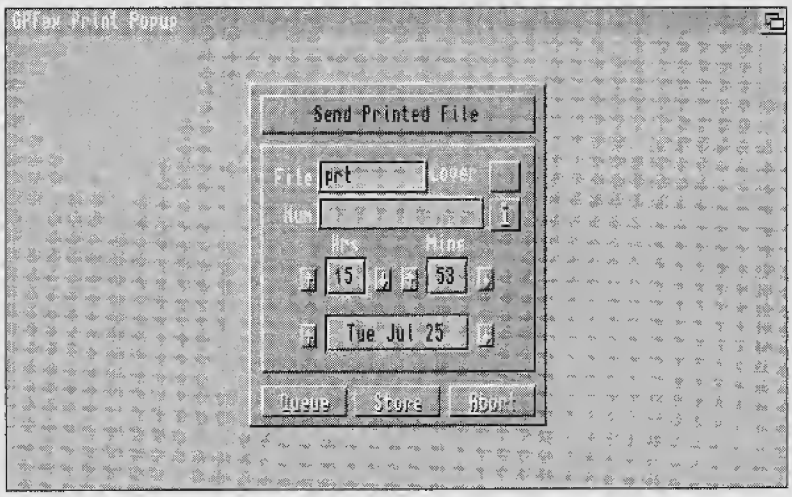
The fax transmission was then managed by the CanDo software talking to GP-Fax through AREXX. The entire program took about two days to perfect.

So you see, faxing from your Amiga has all sorts of possibilities. At the very least you should be faxing letters created in your favourite wordprocessor. To fax you simply enable the fax printer driver (a tick box on the GP-Fax interface) and then choose print to dot matrix in your application. GP-Fax responds with an appropriate list of possible phone numbers and hand holds you through the process. Once the fax is printed, GP-Fax chugs away in the background, resending if necessary to get the fax through. It works well much of the time.

In-bound faxes are a little more clumsy. The idea of previewing each fax on screen before printing can get really tiresome once the volume of pages gets out of hand. So I also wrote a short AREXX script that simply prints all of the faxes currently in the FAX-IN drawer. After they've printed you'll need to deal with them yourself.

It's easy to see if a fax went through to you, or from you. You can also manage your fax files from the log - big faxes you chew up a lot of drive space.

When you print to fax, this screen slides up over the current screen. From here you can schedule the time of the transmission, choose the phone number from a pop-up list and more - the Professional version, which is in the works, will allow attachments.



To set this script up, type the listing on the right of this page into a wordprocessor and then save the file as a TXT or ASCII file into the GPFAX: directory. You must call the file Func10.gpf. Now when you're on the GPFax panel, pressing Shift-F10 will run the print all faxes script, resulting in each fax in the Fax-In drawer being printed.

That's it! You can easily add all sorts of functions to many major Amiga applications, especially our favourite - Professional Page.

SEND IN YOUR TIPS!

If you have a good idea on getting more out of a particular application, send it in to be published. If it turns up in this column, we'll grant you a FREE one year subscription to Amiga Review valued at $49!

Macros, AREXX scripts, examples of making applications talk to each other and tips or short cuts are the sort of thing we're looking for.

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```
/* This script for Shift Function key 10 prints
received faxes
*/
say "Print All Faxes"
options results
address command
'cd gpfax:fax_in'
'list gpfax:fax_in >ram:printme lformat="%s%s"'
address rexx gpfax
last = 1
do until ~ last
      op = open(in,"ram:printme",Read)
      thefile = readln(in)
      if thefile ~= "" then
            do
                  say "Printing" thefile
                  printfax thefile
                  say result
            end
      else
            do
                  say "All Faxes Printed"
                  last = 0
            end
end
say "Goodbye..."
call close in

/*
address command
'delete "ram:printme"'
address
*/
```

Making a letter in Wordworth

By Jai Cowan

I have been using Wordworth 3.1 for quite some time now and have found it to be an excellent package. Wordworth's powerful features are easy to access, but this tutorial aims to show the average Wordworth user how to actually use these features to create eye catching documents.

Firstly I'll start by showing you how to make a good looking letter template. Fire up Wordworth and bring up the drawing tools window by either clicking the button on the tool bar (if you're using it) or selecting the View/Drawing tools menu item. This should display a window with several buttons in it (See Fig 1).

Click the Text box button and drag out a box big enough to hold your address and details in the top right hand corner of the page. Click somewhere inside the box and type your name, address and phone number, or whatever you want to put there.

If your Amiga has a battery backed clock, you can use the updating date feature of Wordworth. Select the Edit/Insert menu item, pick the "insert updating time" option, and then click insert, then Done to leave the Insert menu.

Wordworth should have inserted {-DATE-} in your text box (Fig 2). This will tell Wordworth that you want the date, in whatever format you've selected in Preferences, printed there. Be sure to leave enough room for the date in the text box; if you haven't, just make the box bigger by dragging the black handles out. You can drag and drop the updating date like normal text, and put it wherever you want.

You can type Attention or Dear at the start of the document if you like, leaving a space for the recipient's details. Then you can do a few carriage returns and type yours sincerely and your name. You can also draw a line (see Fig 1) to sign your name on; if you really want to show off your propellorhead abilities, you can use a paint program, draw your signature on a white page with a black pen, grab it as a brush, import it into Wordworth and place it on the line, so you don't even have to sign the printout! If you're richer, you can scan a real signature, which is a lot easi-

Fig 1

Jai Cowan
P/o box 443
Nhulunbuy
N.T. 0881
Ph: 089 87 3388
{-DATE-}

Fig 2

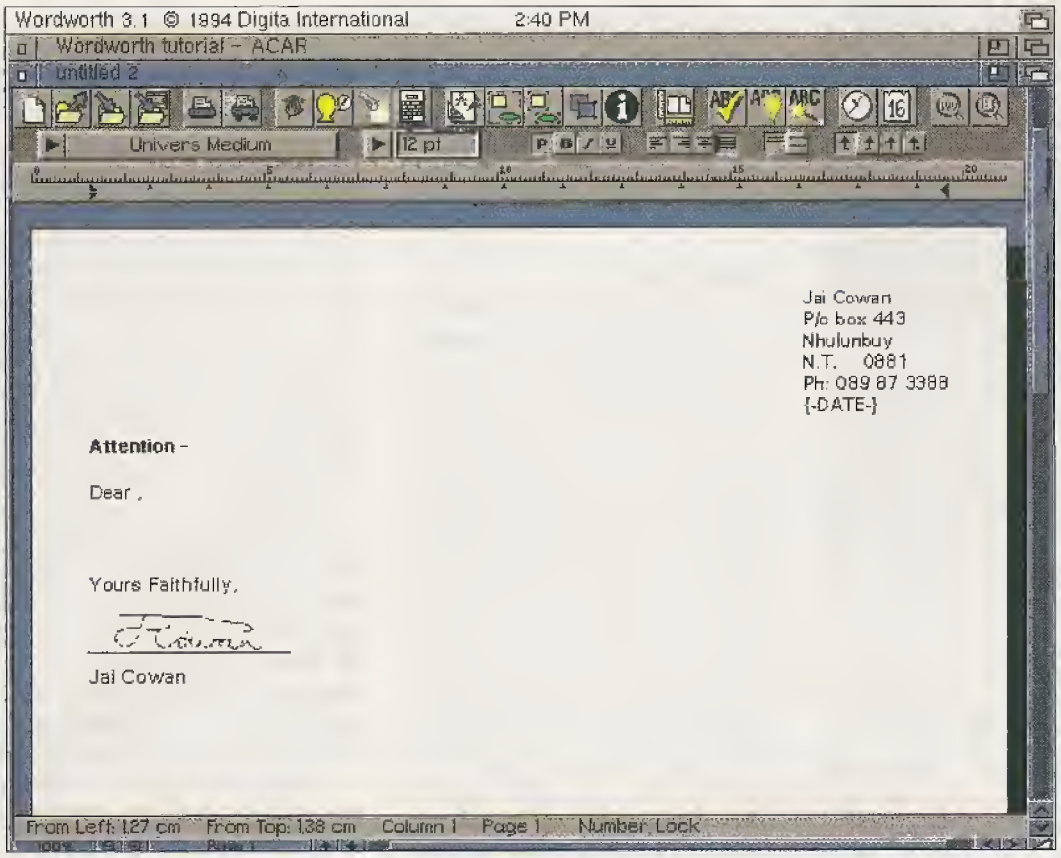


Fig 3

er and more expensive than trying to write on a screen with a mouse.

There you have it, a letter template (Fig 3). Now select Project/Save As and you'll see a window asking you what file format you want to save as. Double click the Wordworth Template option, and then call it "letter" and click save.

Now, when you select new document, the template menu will come up (see Fig 4). You can select letter and your template will be loaded into a new document; all you have to do is enter the details of the person you're sending it to and the message. Wordworth does the rest. You can save the fille out template like any other document.

I'm sure you'll be able think of a few more templates to make up - envelope, paper aeroplane, pot plant label, even stickers to put on your disks. Experiment!

❑

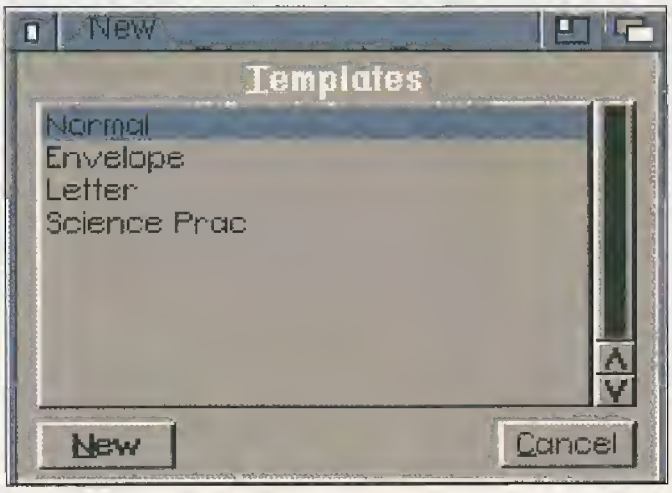
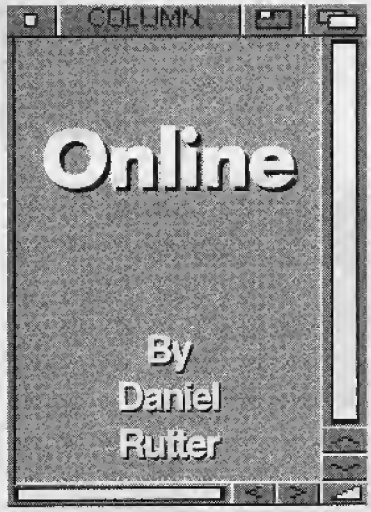


Fig 4



Picking your password

As online information services become more capable and more popular, the possibilities for the adventurous cyber-miscreant become more and more enticing. The problem with online services, from a security standpoint, is that if you have someone's user name and password, you are that person. Since you're far away from the site of the machine your modem connects to, there's no other way for it to ascertain that you are, in fact, you.

In the olden days, this was not a very big deal. If your password on a FidoNet bulletin board gets hacked, the person who hacked it can send some abusive mail to people, download a load of files on your account and leave you with mis-set up-to-here bookmarks in the file and message areas.

Change your password, explain the situation to the sysop and anyone else affected, make plain that the bad boy got your password via means other than being told it by you (The Big No-No) and all is well again. It's annoying, but it's on a level with getting your car scratched, not with getting your house torched.

But now we're careening headlong towards online banking, online shopping and who knows what else. If someone gets control of your account on this sort of service, he can, if clever, steal all your money. If dumb, he can still bet half your money on a 10,000 to 1 long shot and spend the rest on having gravel delivered to your front lawn.

This is starting to get pretty close to that destroying- your-life line, isn't it, folks?

Don't Panic

Of course, at present, none of this is possible. Online banking and shopping aren't really happening yet, and when they do happen they'll have better security precautions than a lil' ol' username and password. Probably a big ol' username and password. But even as things stand today, hijacking someone's Internet account can cost them a whole load of money, if you stay online for ages and leech tons of files.

What can you do about it? Glad you asked. The one big thing you have to defend yourself and your account from cracker attacks (hackers are clever programmers, crackers are people who break into computer systems) is your password. If your username's drutter and your password's rutterd, you are doing the online equivalent of leaving your front door open with a flashing neon sign over it saying "Free Gear".

The attitude to take when picking your password is reasonable paranoia. That is, assume the Big Bad Cracker Monster's after you and take as many steps to foil it as you can without being silly. In the real world, it's not terribly likely that the average user's going to get hacked - and heck, if you're using CompuServe you get given a password anyway - but it certainly doesn't hurt to use sound practice when picking your password.

Do not use your login name backwards. Do not use your date of birth, or your Significant Other's, forward, backward or any other way. No phone numbers, street numbers or names, numberplates, rude words. All far too obvious.

Don't use a password you already use somewhere else, especially if that somewhere else is a less secure system, like a plain old bulletin board system. If somebody cracks the insecure system and steals all the names and passwords, then gives them away on the Internet to thousands of other crackers, your security level everywhere else you use that password has just dropped from fireproof safe to wet paper bag.

Let's say my sanity deserts me and I decide to use "daniel" as my password. To a creature from another planet with no knowledge beyond the Roman alphabet, this looks like six letters picked from a 26 character set, for a total number of equally probable possible combinations of 26 to the power of 6. This is 308,915,776 possibilities to check, for someone who happens to know how long the password's meant to be. Pretty secure, eh.

And, to a casual observer, some nefarious Norwegian netsurfer who doesn't know what my first name is should have a heck of a time cracking my account. What's he going to do, just make like some whizkid from a lousy 80's computer dweeb movie and type all night?

No.

He's going to use a cracking program.

Tools of the trade

Cracking programs are specially designed software that chooses words and/or phrases from presupplied lists (the "dictionary"), manipulates them as ordered and automatically pumps them into whatever's being cracked.

If you're a cracker with a dictionary-equipped password finder, you'll have in that dictionary, among other things, a list of the 7000 or so common given names,

in which Daniel certainly appears. You'll have the data in minutes, even if you don't know my name. And the cracker will automatically check "leinad" as well, in case you're wondering.

And a clever dictionary attack program doesn't just run through a huge list of words in sequence. It starts with the common ones - names, places, expletives. If it's a really snazzy job, its dictionary will go way, way further than just listing words. It'll have film scripts, song lyrics, bumper stickers, political speeches, religious books - you name it. If you think "We're on a mission from God" is hard to guess, think again.

The reason dictionary-assisted cracking works is that passwords aren't random, not by a long chalk. If you choose a more random password, the chances of a dictionary-wangling cracking program getting into your account drop dramatically.

If you use upper and lower case alphabetic and numeric characters (62 characters total) and allow passwords five to eight characters long, there are about 222 trillion possible combinations. Even more, with punctuation and other characters, but this'll do for now.

If you assume you're on a nice friendly system that lets you do a dud login as many times as you like without asking for a fresh username, and you're using a cracking program that generates passwords as fast as they can be fired down your magical 100% efficient 28,800 bps modem link, then in order to scan all of the possibilities for a given username you'll have to be connected for only 967,000 years or so. With a one megabit per second ISDN link, you'll be done in about 28,000 years. Cool.

It doesn't matter if brute force random assault password cracking systems get ten times better, or a hundred, or a thousand, or a million. They'll still take too long to crack a properly random password, especially if the password input's restricted to five characters a second - a simple way to bog down superfast password scanning programs.

"The best passphrases are unprintable!"

So simple random passwords are pretty secure - but this doesn't make 'em convenient. Who the heck uses uBTvnG3K as their password? How are you going to remember that without writing it down on a bit of paper (another Thing Not To Do)?

The easiest way to come up with a password is to use something obvious, but this is also the dumbest way. The trick is to come up with something that's reasonably secure, but not so secure that you have to tattoo it on your arm to remember it.

On low-importance systems (Fido boards and the like) feel free to use simple, random, single words. Frog. Potato. Phlegm. Not very guessable, on systems that let you try three times then hang up on you; a potential cracker would need phenomenal patience and very little else to do with his time. But if you're logging onto your friendly university UNIX system or picking a password to use with your Internet service provider, put in more thought.

Some systems incorporate password checking programs that have their own dictionaries, and check the password you want to use. If it's too guessable, they tell you to have another go. They are affectionately referred to as "fascist" password programs. But you can do better than just fishing for words until one passes the fascist - especially if you're allowed to use a passphrase - a long password.

Passphrases

Recently, a new use for passwords has become popular - encryption. With the spread of PGP (Pretty Good Privacy), anyone can now do reliable public key encryption of sensitive data and send it over public networks, secure in the knowledge that nobody who doesn't have Elvis in cold storage on the moon can crack the code.

With public key encryption, you give everyone your public key, which is a string of characters used to encode data to send to you. You guard your private key with your life, because that's the only sane way to decrypt the data. The maths is of course horrifying, but the concept is simple.

But if someone can guess the passphrase (like a password, only longer) you use to generate your private key, they've got your data. So if you use "foo" as your passphrase, and someone wants to crack it, you're toast. There's actually a nifty UNIX program called, inventively, Crack, whose sole purpose is busting password security. Get the encrypted file you want to crack (by default, Crack works with the UNIX crypt() algorithm, but it can be rerolled to crack others), specify in considerable detail the kinds of passwords to try, and let 'er rip.

Naturally, other cracking programs have popped up too, each more ingenious than the last; the less random your password, the more vulnerable you are. The password is well and truly the weakest link in the chain.

Entropy

The mathematics of encryption is baroquely complex. I do not pretend to understand it. But I do know, because I've read it several times, that password unguessability and, hence, system security, is all bound up in the concept of entropy.

Entropy, or "hard-to-guessness", is what you're aiming for in a password. Entropy is also used to judge the apparent randomness of the output from an encryption program; the more random the output looks, the harder it is to turn back into the original data without the proper key.

Now, if an encryption system is infinitely entropic, it'll produce genuinely random output, and it will be impossible to reconstruct the original data. So, even though the output of cutting-edge encryptors may seem to be random, it's not. There's a structure in there. And if you've got a brain the size of a planet you could figure it out. But since you probably don't - and you probably also don't have access to National Security Agency, make-deals-with-aliens kinds of cryptographic facilities - a much easier way to get the original information is to simply crack the password.

Unless the encryption system's been built from scratch, which is not terribly likely, you can get hold of the encryption algorithm they use and hurl passwords at it until one works on the thing you want to decrypt.

An ideal password is a string of totally random characters. But a string of totally random characters, especially a fairly long one, is as I've said before something of a sod to remember. But you CAN foil dictionary attacks without making a password that looks like a chunk of machine code. The technique I like most is called "shocking nonsense".

A shocking nonsense passphrase is a sentence which doesn't make much sense, but nonetheless contains the kind of thing you'd never actually say out loud. Dirty words, highly politically incorrect sentiments, ungrammatical structure, you get the idea. Holler it in a public place, get arrested.

The whole idea of a password, though, is that you and you alone know it. Who cares how obscene or ridiculous it is, if you're never going to tell anyone. And a dictionary searcher'd have to be pretty darn good to get "Beagles twirl widdershins up my saxophone". And you'll have some trouble forgetting it.

Big numbers

The idea here is to get the randomness of your password close to the randomness of the system being used to encrypt the data - which can be very, very high indeed. For example, the DES (Data Encryption Standard) system has about 55 "bits of entropy", or something like 40 quadrillion possible keys, whereas the more powerful IDEA system has about 128 bits - a staggering 350 billion quadrillion quadrillion keys. Random-guess cracking IDEA on a steaming fast system that tries a million keys a second would take you long enough to walk about 200 trillion light years. I could put the number of years in here, but it'd just annoy the typesetters.

Getting a typeable password to equal this brainmeltingly unguessable level is not as preposterous as it sounds - a 22 character random password from the alphabetic plus numbers character set I used above will do it - and making it memorable can be done, too.

Say you compose your nonsense phrase by dictionary-browsing, picking words pretty much randomly from, say, 100,000 of the suckers. A five word password will thus have something in the order of ten trillion trillion possibilities, disregarding rules of grammar; with eight words you're up around the same horrifying unguessability as IDEA provides internally. Use ten words and you'll give yourself enough leeway to make it grammatically memorable.

And with modern systems you don't have to type a passphrase in every time. Macros, login scripts and whole command line covering shells are proliferating in the comms and encryption world, to the point where not many CompuServe users actually remember their password at all - they just click the icon and they're away.

Of course, anyone else who clicks the icon is now officially them, but keeping others physically off your computer is a whole 'nother ballgame.

Following up

So you've made a secure password. Hooray for you. Now keep it secure - don't scribble it on the back of your uni ID card, don't type it with anyone peering over your shoulder, don't tell your mate so he can log in as you and peruse your collection of Anna Nicole Smith pictures.

This last - telling people - is expressly forbidden by every system with an ounce of sense, and for very good reason. Sharing passwords is like promiscuous sex - you're not just sharing your password with the one person you tell, you're sharing it with anyone that person thinks is safe to tell, or anyone that manages to con it out of anyone that gets told. All you need is one dishonest person somewhere down the line and presto! Your account now belongs to J. Random Cracker! Simple solution - Trust No One, at least with your password.

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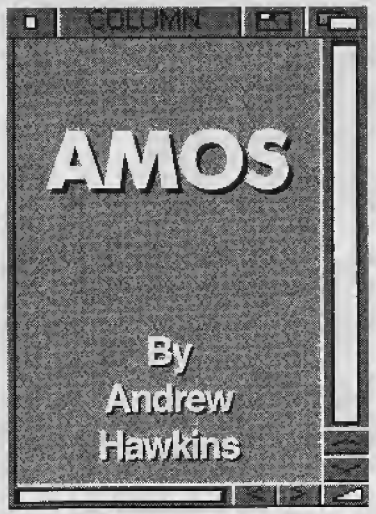


Making the most of AMOS 3D - Final Instalment

◗ Firstly, a warm thankyou to Miss Ranford for her patience and support (Beta Tester!).

Welcome to the final chapter. Sorry about the delay; I realise it may have put a spanner in the works, but by now you should have the essential part of the entire game.

What follows is a discussion on enhancements to the program, that don't necessarily need to be added, but improve the gameplay somewhat.

Firstly, insert the following procedure at the bottom of your program. This generates a power-up every time you destroy a tank. This actually affects gameplay, because you must venture forward to collect the power-up, putting you at risk of being shot.

(See Listing 1)

(Note: if a line's been wrapped to the next one there's a ➡ to indicate it)

The procedure uses modes, so that only the required function of the procedure is used (a speed increase). The first part of the procedure, if MDE is set to -1, causes all existing power-ups to be erased, ready for the next wave.

Power-ups use objects 7-9. The next part of the procedure, if MDE is set to 0, causes a new power-up to be created. Firstly, the FOR-NEXT loop checks through the array POW() for a free space or POW(W)=0. This limits power-ups to three at a time. Believe me, this is more than enough!

A random number is generated to decide on the power-up to be created, and then based on the number, OBJ$ is set to reflect to "object name" as stored on your disk. NOTE: These names must be exactly the same as the name of your corresponding object. Tutorial #2 clearly outlines the names at the beginning (including underscores " _ ").

Note that power-ups 4-6 use the same "object name", and following this POW _ NM$(W) is set to reflect the differences, as they look the same on the battlefield. POW _ NM$(W) is displayed next to the object when you play, so you could change the names to anything you want as long as it described the power-ups' abilities.

Finally the object instance is created at the coords of the tank that was destroyed, the power is given its own set of coords, and Td Angle B NOS causes the object to rotate on the spot continuously. From there it jumps to EX _ REGEN. This is really bad practice, but it stops the FOR-NEXT in its tracks when an object is created (a speed increase).

The next condition of MDE when set to 1 does two things; it checks to see if you are invulnerable and if so shows you how many cycles you have left of invulnerability, and it checks the proximity of the power-up to your tank. The scores are obvious, the DAM is reset to full, your gun damage level increases or you are given 50 cycles of invulnerability. The invulnerability could be increased, but its current level allows you to either attempt a rampant attack on an enemy nearby or move out of firing range.

If a power-up is close enough you get its attributes, it is killed off and a free space is cleared for a new power-up. The next part of the routine applies to power-ups 4-6, and merely displays the name of the power-up on the screen.

It is conceivable that you could add new power-ups. You don't have to type this bit in. For example, to add a smart-bomb do this:

1. Change R=Rnd(5)+1 to R=Rnd(6)+1
2. Change If R=4 or R=5 or R=6 to include or R=7
3. Add the line If R=7 : POW _ NM$(W)= "SMARTBOMB" : End If
4. To reflect the power-up, below Play 10,1 add:

```
If POW(W)=7
  For P=2 to TANKS+2 : _ KILL
➡_ TANK(P)=1 : Next P
  Boom : Colour 0,$fff : Wait 5 :
➡Colour 0,$335
End If
```

Now save your program and read on. Been making back-ups, haven't we? Now go to the MAIN loop and after the line:

```
GROUND

insert:

POWER _ UP[1,0]
```

Open the Procedure KOLLISIONS[OBJ1] and after the lines:

```
If OBJ _ CLASS(MEM2)=1
Td Object MEM2,"tank",
➡XM+3000-Rnd(6000),
➡0,ZM+3000+Rnd(6000), 0,0,0

insert:

POWER _ UP[0,MEM2]
```

Now go to the top of your program and type in:

```
Dim POW(20), POW _ NM$(20)
```

Global POW(),POW _ NM$(), INVULN

Remember to keep your DIM's and GLOBAL's separate. Save and run the program. Destroy a tank and it yields a power-up spinning in front of you. Move over the power-up, a tone will sound and the power-up takes effect. No? Go back and check for spelling mistakes.

Multi-views

Next up is the VR-view change system. There will be five views of your tank. The five views are "thru the barrel" (the default), "turret command", slightly behind and above the tank, helicopter view and finally a satellite view. The satellite view makes hiding behind objects easier but also makes the game easier to play. I've kept the height of this view low enough that you can't see too far around you, forcing you to switch to other views to target distant enemies.

What are you waiting for? Start typing. This procedure goes in at the bottom of the program. Remember to select "Close All" as you finish typing in each new procedure. When there are no bugs, it makes it easier to find your way around the program listing.
(See Listing 2)

There are two modes of operation for this procedure. MDE=0 moves the viewpoint (object 0) into a position offset from your tank (object 19). The first two views use the mouse pointer as a gunsight. Note that the first VW _ MODE condition, when set to 0, moves object 19 -600000 VLU's below. This is because you are inside the tank and wouldn't see it anyway.

To speed up the update speed, it makes sense to move object 19 well away from the viewpoint. The routine is straightforward and just moves object 19 to where you are

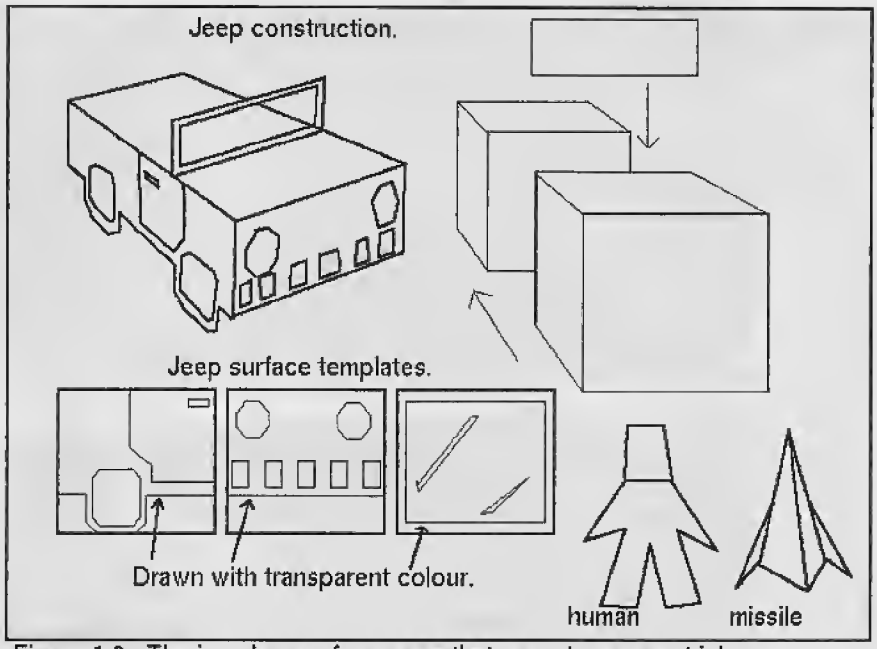


Figure 1.0 The jeep has surface maps that use a transparent ink to create the tyres and the window.

in the world coordinates (most moves made with the joystick affect viewpoint 0), and moves the viewpoint back so that you get a third-person perspective.

The second mode of operation, MDE=1, puts the viewpoint (object 0) back into place for the next joystick manoeuvres. Now go to the MAIN loop and after:

```
TERRAIN _ MANAGER
End If
```

type in:

```
VR _ MODE[0]
```

Next go down to just after GROUND in the MAIN loop and type in:

```
VR _ MODE[1]
```

Go to the top of the program and type in:

```
Global VW _ MODE, YM, AM
```

Open the MOVE _ PLAYER routine, and just below A$=Inkey$ type:

```
If A$=" " : Add VW _ MODE,1,0
➡to 4 : End If
```

Next, open the INITIALISE routine and search down the listing for:

```
WVE=0
```

and type in under it:

```
Change Mouse 2
Td Object 19,"tank",0,0,0,0,0,0
Td Set Colour 19,2,12
```

And there you have it. Save the program and run it. Pressing the space bar shuffles through the views, and you can control the tank in any one. It's possible to exploit this system to have a POV missile controlled by the joystick.

You need a new VW _ MODE to be set at 5. In the MOVE _

Listing 1

```
Procedure POWER _ UP[MDE,OBJ1]
   If MDE=-1 : Rem erase all power-ups
      For W=1 To 3
         If POW(W)<>0
            Td Kill W+6 : POW(W)=0
         End If
      Next W
   End If
   If MDE=0 : Rem make new powerup
      For W=1 To 3
         If POW(W)=0
            NOS=6+W
            POW _ NM$(W)=""
            R=Rnd(5)+1
            POW(W)=R
            If R=1
               OBJ$="score _ 250"
            End If
            If R=2
               OBJ$="score _ 500"
            End If
            If R=3
               OBJ$="score _ 1000"
            End If
            If R=4 or R=5 or R=6
               OBJ$="power _ up"
            End If
            If R=4
               POW _ NM$(W)="SHIELD"
            End If
            If R=5
               POW _ NM$(W)="GUN POWER"
            End If
            If R=6
               POW _ NM$(W)="INVULNERABLE"
            End If
            Td Object NOS,OBJ$,OX(OBJ1),0,OZ(OBJ1),0,0,0
            OX(NOS)=OX(OBJ1)
            OZ(NOS)=OZ(OBJ1)
            Td Angle B NOS,"(1,-3500,1)L"
            Goto EX _ REGEN
         End If
      Next W
      EX _ REGEN:
   End If
   If MDE=1 : Rem handle power ups
      If INVULN>0
         Text 30,30,"INVULNERABLE:"+Str$(INVULN)
         Dec INVULN
      End If
      For W=1 To 3
         If POW(W)<>0
            RANGE=999999
            NOS=6+W
            TD _ RANGE[0,NOS,0]
_           If RANGE<800
               Play 10,1
               If POW(W)=1
                  Add SCORE,250
               End If
               If POW(W)=2
                  Add SCORE,500
               End If
               If POW(W)=3
                  Add SCORE,1000
               End If
               If POW(W)=4
                  DAM=20
               End If
               If POW(W)=5
                  Add GUN _ DAM,5
                  Add SCORE,1
                  If GUN _ DAM>40
                     GUN _ DAM=40
                  End If
               End If
               If POW(W)=6
                  INVULN=50
               End If
               POW(W)=0 : Td Kill NOS
            End If
         End If
         If POW(W)>3
            X1=Td Screen X(OX(NOS),0,OZ(NOS))
            Y1=Td Screen Y
            If X1>-1 and Y1>-1
               Text X1+10,Y1-20,POW _ NM$(W)
            End If
         End If
      Next W
   End If
End Proc
```

Listing 2

```
Procedure VR _ MODE[MDE]
   If MDE=0
      If VW _ MODE=0 : Rem Thru The Barrel
         Show On
         X Mouse=131+160
         Y Mouse=42+100
         Td Move Rel 19,XM,-600000,ZM
      End If
      If VW _ MODE=1 : Rem Turret Command
         Show On
         X Mouse=131+160
         Y Mouse=42+100
         Td Move 19,XM,YM,ZM : Td Angle 19,AM,BM,CM
         Td Forward 0,-90 : Td Move Rel 0,0,110,0
      End If
      If VW _ MODE=2 : Rem Behind and Above
         Hide On
         Td Move 19,XM,YM,ZM : Td Angle 19,AM,BM,CM
         Td Forward 0,-1000 : Td Move Rel 0,0,300,0 : Td Face
➡0,19
      End If
      If VW _ MODE=3 : Rem Helicopter view
         Hide On
         Td Move 19,XM,YM,ZM : Td Angle 19,AM,BM,CM
         Td Forward 0,-3000 : Td Move Rel 0,0,500,0 : Td Face
➡0,19
      End If
      If VW _ MODE=4 : Rem Satellite view
         Hide On
         Td Move 19,XM,YM,ZM : Td Angle 19,AM,BM,CM
         Td Forward 0,-4000 : Td Move Rel 0,0,10000,0 : Td Face
➡0,19
      End If
   End If
   OX(19)=XM : OZ(19)=ZM
   If MDE=1
      If VW _ MODE<>0
         Td Move 0,XM,YM,ZM : Td Angle 0,AM,BM,CM
      End If
   End If
End Proc
```

Listing 3

```
Procedure CREATE _ ZOOM _ SPRITES
   Screen 0
   Curs Off
   Cls 0
   Colour 5,$F00
   Colour 6,$333
   Ink 5
   Polygon 5,5 To 3,3 To 8,5 To 11,1 To 15,8 To 19,11 To 10,8
➡To 5,15
   X=42 : Y=32
   IMAGE=1
   For P=1 To 15
      Cls 0,110,90 To 200,160
      Zoom 0,0,0,20,15 To 0,150,100,150+X,100+Y
      Get Bob IMAGE,150,100 To 150+X,100+Y
      Inc IMAGE
      X=X-2 : Y=Y-2
   Next P
   Cls 0
   Ink 6 : Circle 10,10,10 : Set Pattern 2
   Ink 6,0 : Paint 10,10
   Ink 0 : Circle 10,10,10
   Ink 6,1
   X=32 : Y=32
   For P=1 To 15
      Cls 0,110,90 To 200,150
      Zoom 0,0,0,20,20 To 0,150,100,150+X,100+Y
      Get Bob IMAGE,150,100 To 150+X,100+Y
      Inc IMAGE
      X=X-2 : Y=Y-2
   Next P
   SPR _ LEN=IMAGE-1
   SPR _ $ZE=15
   Set Pattern 0
End Proc
```

PLAYERroutine, you need a bypass if VW _ MODE is set to 5, to direct all joystick moves to the bullet object 20, plus adjusting the A$=" " test to allow VW _ MODE to go up to five. In the VR _ MODE[MDE] procedure, include a separate IF/ENDIF condition for VW _ MODE=5, and move Object 0 to Object 20's position and angle. If the bullet wasn't on, it would place the viewpoint at the position of object 0 as a default.

Beautifying

Now onto sprucing up the graphics. The first one to change is the cockpit. This is just a discussion so you'll have to consult your AMOS manual for specifics, but the basics are as follows.

1. Run the game until you can move the tank around.
2. Halt the program by pressing Ctrl-C.
3. Press ESC while you can still see the game screen. You will be in Direct Mode.
4. Type "Screen 0" and press return.
5. Type "Save Iff "‹mydisk›:Demo.pic" and press return.

You will now have a screenshot of the exact position of the cockpit. The idea now is to load up your paint program, load the Demo.pic file and draw around the gauges as you like. You could go for metal plates, or wires, or anything. Save the image.

6. Load your game, go into the INITIALISE procedure and just above

Screen Open 1,320,256,16,Lowres

type:

Load Iff "‹mydisk›:Demo.pic",2

Listing 4

```
Procedure _ DO _ EXP[MEM2,MDE]
   If MDE=0 : Rem generate smoke
      For W=0 To 5
        If  _ EXPL(W,0)=0 and OBJ _ CLASS(MEM2)<>0 : Rem free explosion
            _ EXPL(W,0)=15
            _ EXPL(W,1)=Td Position X(MEM2)
            _ EXPL(W,2)=0+Rnd(300)
            _ EXPL(W,3)=Td Position Z(MEM2)
            _ EXPL(W,4)=Rnd(1) : Rem flip image or not
            Pop Proc
        End If
      Next W
    End If
    If MDE=1 : Rem do smoke
       For W=0 To 5
         If  _ EXPL(W,0)>0
         Dec _ EXPL(W,0)
         Add _ EXPL(W,2),50 : Rem makes smoke rise
         X=Abs(XM- _ EXPL(W,1))
         Y=Abs(YM- _ EXPL(W,2))
         Z=Abs(ZM- _ EXPL(W,3))
         RANGE=X+Y+Z
         If  _ EXPL(W,0)=14
            SPR=0
         Else
            SPR=15
         End If
         If RANGE/500>SPR _ SZE
            IMAGE=SPR*SPR _ SZE : Rem locate smoke in sprite bank
         Else
            IMAGE=SPR+(RANGE/500)
         End If
         X1=Td Screen X( _ EXPL(W,1), _ EXPL(W,2), _ EXPL(W,3))
         Y1=Td Screen Y
         If IMAGE<1 or IMAGE>SPR _ LEN
            IMAGE=1
         End If
         If X1>-1 and Y1>-1 and Y1<175 : Rem screen clipping
            If  _ EXPL(W,4)=0 : Rem flip image
               Paste Bob X1,Y1,Hrev(IMAGE)
            Else
               Paste Bob X1,Y1,IMAGE
            End If
         Else
            _ EXPL(W,0)=0
         End If
       End If
     Next W
   End If
End Proc
```

Screen Hide 2

Now after

Td Screen Height 200

type in:

Screen Copy 2,0,0,320,256 to ➡0,0,0
Screen Copy Logic(0) to Physic(0) ➡Screen 0

When the program runs, your new image will be in the cockpit. Some of the score and radar routines may overwrite parts of your graphics, so go into the corresponding routine and adjust erasures accordingly.

Next we'll move onto mixing sprites with 3do's. The best way to implement this is by generating sprites when the game runs, but you could modify the graphics to suit your own taste, or genre. You can use the sprites to show smoke and fire when shooting an object. Many 3D games use this technique for explosions and gun fire. You could even digitise explosions to use as sprites.

Firstly, copy the following procedure listing at the bottom of your program.
(See Listing 3)

Next go to the top of the program and type:

Dim _ EXPL(5,4)
Global _ EXPL(),SPR _

➡LEN,SPR _ SZE

Open the INITIALISE routine, and look for FLASHOFF. Following this, type:

```
If Length(1)=0
  CREATE _ ZOOM _ SPRITES
Else
  SPR _ LEN=Length(1)
  SPR _ SZE=15
End If
```

Following that, type in this only if you don't have a custom demo.pic:

```
Cls 1
```

Save the program. The first part of this listing is directed at screen 0, because the sprites need to share the same colours, bitplanes and so on. The Polygon statement generates an explosion-like shape (not a very good one I admit), X and Y indicate the size of the shape to be zoomed, which is twice the size of the polygon, and then the FOR-NEXT loop fed with the dimishing X and Y coords clears the screen, zooms the polygon and grabs the image as a bob.

The next part of the routine creates a circle, and fills it with a mesh that is transparent in places, and the FOR-NEXT loop zooms and grabs that image. This represents the smoke sprite.

Why all the zooming? Well, we want to show the explosions in relation to the 3D objects. If a tank is a long distance from the player, the smoke and explosion will be correspondingly smaller as well. Just trust me on this one, it looks great on the fly.

Finally, the length of the sprite bank (bank 1) and the number of sizes for the sprites is set, for use with the explosion routine. Yep, that's up next, so get cracking.

(See Listing 4)

Open the KOLLISIONS routine and under Boom : Add OBJ ➡_ DAM(MEM2),-GUN _ DAM type:

```
For X=1 To 1+Rnd(3)
_ DO _ EXP[MEM2,0]
Next X
```

Look further down the KOLLISION routine for Inc _ KILL _ ➡TANK(MEM2) and type:

```
_ DO _ EXP[MEM2,0]
```

Go back to the MAIN loop and just before GROUND type in:

```
_ DO _ EXP[0,1]
```

Save the program. The first part of the _ DO _ EXP[] procedure creates a smoke element when called for, such as when you hit or destroy an object. First, a free place is sought (there is a limit of six elements for speed). Next, the first part of the _ EXPL() array element W,0 is set to 15. This means the explosion will last 15 cycles. Elements 1, 2 and 3 store the 3D coords of the smoke element, and element 4 decides whether to flip the image or not. This is just for visual variety. From there it Pop Proc's.

The next part of the routine is called at the end of the MAIN loop and reflects the changes of any smoke elements created. It checks the range to the player for size, flips the image if directed to, makes the smoke rise in the air and kills the smoke element of if the player is no longer looking at it.

Now some house-keeping. The procedure FIRE[] must be changed. There is a major change to made to FIRE[] that increases the whole program's speed of execution. Firstly change the procedure name to:

```
Procedure _ FIRE[OBJ1,MDE]
```

Note the addition of MDE, as this procedure now has two functions. Under the procedure name type in:

```
If MDE=0
```

and before the 2nd FOR-NEXT loop for Q type in:

```
End If
```

Under that line type in:

```
If MDE=1
```

and just before ENDPROC type in:

```
End If
```

This breaks the first part which creates a bullet with the second part which manages created bullets. It dawned on me that the bullets didn't need to be managed for every object, but only when the objects had been checked. Hence the separation of functions.

Open the FIRE[OBJ1,MDE] procedure. Look down the listing for IF SHOT(Q)<>R and add:

```
and _ KILL _ TANK(R)<>1
```

Look a few lines down for

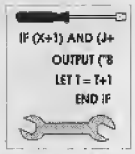
```
Bell : Add OBJ _ DAM(R),-EN _ GUN _ DAM
```

and type on the next line:

```
_ DO _ EXP[R,0]
```

Also change Bell to Boom. Look further down for the line:

```
IF RANGE<800 and INVULN<=0
```



and type in under the Boom statement:

```
If VW _ MODE›1
_ DO _ EXP[19,0]
End If
```

Open the INITIALISE routine and under:

```
Shared OBJ$
```

type in:

```
If Length(5)=0 : rem generate a rocket sound FX
Reserve As Chip Data 5,5000
For P=2 To Length(5)-2 Step 2
Doke P+Start(5),Rnd(256)
Next P
End If
```

NOTE: Make sure you type this in properly and save your program before executing it from now on, because the Doke statement changes memory in your Amiga. If it's slightly wrong you can and will crash the Amiga. Be warned!

Look further down for the line:

```
Td Load "power _ up"
```

and under it type:

```
Td Load "jeep"
Td Load "missile"
Td Load "human"
```

These load the new objects. Oh, you don't have these objects yet do you? That's OK - just keep typing and I'll introduce them later. Look further down for the line:

```
For CLASS=1 to 12
```

and change it to:

```
For CLASS=1 to 15
```

This allows the jeep, missile and human to be included in the object class list. More on this later. Look futher down for the line:

```
' rem initialise wave
```

and under it type in:

```
Td Move 0,0,0,0
XM=Td Position X(0)
ZM=Td Position Z(0)
```

This places the tank back at the centre of the game domain every wave. Look further down for

```
If HILLS›3
HILLS=3
End If
```

and under it type in:

```
JEEPS=1+(WVE/3)
If JEEPS›3
JEEPS=3
End If
HUMANS=1+(WVE/3)
If HUMANS›3
HUMANS=3
End If
MISSILE=1+(WVE/3)
If MISSILE›3
MISSILE=3
End If
```

This sets up the "seed" to generate the new objects when the wave runs. Look futher down for:

```
GENERATE _ TERRAIN[P]
Next P
```

and under it type in:

```
POWER _ UP[-1,0] : Rem initialise power-ups
```

Finally, for this procedure anyhow, under the final Data statement type:

```
' jeep class 13
Data 1,0,1,1,150,30,1,0,0
' human class 14
Data 0,0,1,1,50,10,1,1,0
' missile class 15
Data 1,0,0,1,500,10,3,0,0
```

These are the object-orientated datas for the new object types. Save the program. Go to the top of the listing and type in:

```
Global JEEPS, HUMANS, MISSILE
```

Look for the Dim statement:

```
Dim CLASS(12)
```

and change it to:

```
CLASS(15)
```

This allows the array to accomodate for the new object-types. Open the ABLE[MEM3] procedure; the first line should be changed to:

```
If OBJ _ CLASS(MEM3)‹›1  and
OBJ _ CLASS(MEM3)‹›13
```

Look futher down for:

```
If OBJ _ CLASS(MEM3)=1
```

and add:

```
or OBJ _ CLASS(MEM3)=13
```

These statements allow the jeep to push objects around just like the tank. If you intend to adding objects that can push things around, their OBJ _ CLASS() must be accounted for in this procedure.

Now onto the new objects. Check out the picture to see what they look like. There is also the layout for the surface detail on the jeep (note that you must use the

colour of the surface to make the cutaway-tyre trick work).

The jeep is two cubes stuck end on end and a plane shaped to make the glass using tranparent ink for the see-through effect. The missile is a stretched pyramid with flat plane fins attatched to its vertices (I copied it from the OM Examples disk - so that's where to find it!). The human is two planes shaped accordingly. You must save these objects as "jeep", "human" and "missile".

Note in the INITIALISEroutine that the ROUND attribute is set to 1, to make the human always face you. Also, the FIRE rule for the human and the jeep allows them to fire in any direction without having to turn. Basically, they use the same rule as the Gun _ mount.

Next we must allow the missile to have a move, seeing as though the jeep uses the tank moves and the humans uses the tree move, we need to include a move for the missile. Also included are the two new moves, KAMIKAZE and EVASIVE, as discussed last time.

Firstly, open the CLASS _ CHECK procedure and look for the first procedure call to _ FIRE[P]. Change this to _ FIRE[P,0]. Now go to:

```
If OBB<>1
If _ KILL _ TANK(P)=0
```

and type on the next line:

```
If OBB=15 : Rem missile
NOISE[OBB]
End If
```

This makes a rocket sound if a missile is on the game domain. The Doke statement mentioned earlier was used to create the random "noise" in the sound bank 5. You can Bload your own missile sound into the Start(5) if you want to be creative. Look further down for the statement:

```
If _ FIRE _ OK(P)=0
```

and convert the lines of code to look like this:

```
If _ FIRE _ OK(P)=0 and
➥Rnd(10)<=CLASS(OBB,7)
_ FIRE _ OK(P)=-1
End If
_ FIRE[P,0]
```

Just before the ENDPROC statement type:

```
_ FIRE[0,1]
```

Open the SET _ MOVE[OBJ1] procedure. This needs to be changed to stop the tank from moving if it's out of range (something I missed last time). At the very top type in:

```
RANGE=999999
MEM3=OBJ1 : TNK=OBJ1 : Rem
➥remember some conflicting
➥variables
_ TD _ RANGE[19,TNK,2] : Rem
➥get range to player's tank
OBJ1=MEM3
If RANGE<20000 : Rem move only if range
```

Now look further down for the line:

```
Td Move Z
➥OBJ1,"(1,"+Str$(DIFFZ)+",1)L"
```

and under it type:

```
Else
Td Move X OBJ1,"(0,0,0)" : Rem
➥otherwise stop dead
Td Move Z OBJ1,"(0,0,0)"
SPD(OBJ1)=0
End If
```

Save the program. Now open GENERATE _ TERRAIN and look at the top of the code for these lines:

```
Else
OBJ$="cube" : OBJ _
➥CLASS(OBJ)=3 : Goto GEN _
➥OBJ
End If
End If
```

Directly underneath them type this:

```
If Rnd(10)<JEEPS
   YM=10 : PR=0 : OBJ _
➥CLASS(OBJ)=13: OBJ$="jeep"
   OBJ _ SPD(OBJ)=140 : OBJ _
➥TRN(OBJ)=10
   Goto GEN _ OBJ
End If
   If Rnd(10)<HUMANS
   YM=-30 : PR=0 : OBJ _
➥CLASS(OBJ)=14:
➥OBJ$="human"
   OBJ _ SPD(OBJ)=0
   Goto GEN _ OBJ
End If
   If Rnd(10)<MISSILE
   YM=50 : PR=0 : OBJ _
➥CLASS(OBJ)=15:
➥OBJ$="missile"
   OBJ _ SPD(OBJ)=170 :
➥SPD(OBJ)=170 : OBJ _
➥TRN(OBJ)=10
Goto GEN _ OBJ
End If
```

These lines of code allow for the new object-types and create them if applicable. Their order over the subsequent objects matters, and if you want to get past wave 5 you may wish to copy those lines of code under the lines:

```
If Rnd(10)<LAKES
YM=-150 : PR=-1 : OBJ _
➥CLASS(OBJ)=7:
➥OBJ$="swamp"
Goto GEN _ OBJ
End If
```

I say this because the humans and jeeps are rather tough! They can fire at you regardless of their direction, and they tend to fire constantly. This is where your use of obstacles comes into its own. Surprisingly, the tanks aren't your biggest problem when these new objects appear; maybe you can find a way around this. My solution of copying the code further down just reduces the chance of them appearing. Actually, the missiles are fun to shoot because they move at you fairly slowly, so maybe you could just copy the jeeps and humans down. Anyway:

Moving the missiles requires a little bit of code in the MOVE[OBJ1] procedure. Another change here is to allow the Kamikaze and Evasive manoeuvres not shown last month!

Firstly at the very top of the procedure type:

```
Shared SET _ MOVE
SET _ MOVE=0
```

To the next line, If _ DO _ ➡RADAR=4, add:

```
and TASK(OBJ1)=0
```

This aborts the routine if a tank is already busy with an existing move. Go to the top of your program and type in:

```
Dim TASK(20)
Global TASK()
```

Now in the MOVE[OBJ1] procedure on the line after:

```
If _ DO _ RADAR=4 and
➡TASK(OBJ1)=0
```

type in:

```
If OBJ _ CLASS(OBJ1)=15 : Rem
➡missile
Td Face OBJ1,0
SPD(OBJ1)=OBJ _ SPD(OBJ1)
SET _ MOVE[OBJ1]
TASK(OBJ1)=5
Pop Proc
End If
```

This faces the missile at the player and moves it forward using the SET _ MOVE[] procedure. Following those lines type in these lines:

```
If Rnd(10)<=CLASS(OBJ1,7) and
➡YIELD<2 : Rem test for
➡kamikaze
SET _ MOVE=1
TASK(OBJ1)=30
End If
```

Note the use of SET _ MOVE and TASK(). TASK() tells the move routines to ignore the tank while it's executing a move. The next line should be changed to:

```
If Rnd(10)<=CLASS(OBJ1,7) or
➡SET _ MOVE=1 : Rem new ad-
dition
```

and after these lines(they should be there already):

```
If SPD(OBJ1)<=OBJ _
SPD(OBJ1)
Add SPD(OBJ1),30
End If
SET _ MOVE[OBJ1]
```

type:

```
If SET _ MOVE=0 :
TASK(OBJ1)=1 : End If : Rem
new line
```

This is for the Kamikaze tactic. If the number of tanks remaining for a wave (YIELD) is less than 2, enemy tanks may choose to just head straight for you, guns blazing! The routines for this are already there - namely turn to face the player, speed up and fire. By setting the SET _ MOVE to 1, the routines for "speed up" and "turn to face player" don't have to pass the aggression test with CLASS(OBJ1,7); they will do it automatically and for 30 cycles. Of course if the SET _ MOVE is still 0 (the tank is not kamikaze-ing) then assign TASK() to 1, so that next time around the tank can access the moves again.

Now look down the program for the next SET _ MOVE[OBJ1] statement and under it type:

```
If SET _ MOVE=0 :
TASK(OBJ1)=1 : End If : Rem
new line
```

Directly following this is an End If, and the next line should be amended to read:

```
If Rnd(10)<=CLASS(OBJ1,7) or
➡SET _ MOVE=1 : rem line
```

This is a bypass if the tank is kamikaze-ing. Under the line:

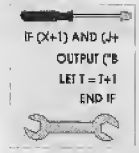
```
Td Angle B OBJ1,"
(1,"+Str$(TURN*182)+
","+Str$(TRN _ SPD _ DE-
LAY)+")"
```

type in:

```
If SET _ MOVE=0 :
TASK(OBJ1)= TRN _ SPD _ DE-
LAY : End If : Rem NEW LINE
```

Now * above * the last End If statement before End Proc type in:

```
Else
If Rnd(10)<=CLASS(OBJ1,7) and
➡SET _ MOVE=0 and VW _
➡MODE<3
If OBJ _ CLASS(OBJ1)<>15 and
➡TASK(OBJ1)=0
Rem test for evasive
```




```
X1=Td Screen
➥X(OX(OBJ1),0,OZ(OBJ1))
Y1=Td Screen Y
If X1›-1 and Y1›-1 : Rem tank is
➥onscreen
TURN=90/OBJ _ TRN(OBJ1) :
➥TURN _ SPD _ DE
➥LAY=90/OBJ _ TRN(OBJ1)
Td Move X OBJ1,"(0,0,0)"
Td Move Z OBJ1,"(0,0,0)"
Td Angle B OBJ1,
➥"(1,"+Str$(TURN*182)
➥+","+Str$(TRN _ SPD _ DE
➥LAY)+")"
If SPD(OBJ1)<=OBJ _
➥SPD(OBJ1)
Add SPD(OBJ1),60
End If
SET _ MOVE[OBJ1]
TASK(OBJ1)=30
End If
End If
End If
If TASK(OBJ1)›0
Dec TASK(OBJ1)
End If
```

These lines make a tank take an evasive move by turning 90 degrees and increasing speed to avoid being hit. The last lines reduce the TASK() counter. When TASK()=0, the tank is ready to receive new move instructions. Save the program.

Finally, we want to detect a collision between the missile and the player. Open the KOLLISION[OBJ1]procedure and after the lines:

```
Td Kill 20 : Pop Proc
End If
End If
```

type in:

```
If OBJ _ CLASS(MEM2)=15 :
➥Rem missile
_ TD _ RANGE[19,MEM2,2] :
➥Rem test range to player
If RANGE‹800
Boom : Add DAM,-5
For X=1 To 1+Rnd(3)
_ DO _ EXP[MEM2,0]
Next X
Td Kill MEM2 : OBJ _
➥CLASS(MEM2)=0
End If
End If
```

This detects whether a missile is close enough to the player to do damage, and if so it terminates itself. Notice the _ DO _ EXP[] procedure call. If you are looking at your tank externally, when the missile hits, you will see some explosions around your tank.

Now, finally, the sound routine for your missile. Type away:

```
Procedure NOISE[OBJ1]
MEM3=OBJ1
_ TD _ RANGE[0,MEM3,3]
OBJ1=MEM3
If RANGE›10000
RANGE=10000
End If
Sam Raw 1,Start(5),5000,11000-
➥RANGE
Volume 1,63-(RANGE/190)
End Proc
```

Save and run the program. As usual you'll have heaps of bugs to fix, but just check the magazine carefully and try not to get too frustrated. The code that appears in the tutorial has been cut from the working program using the "SAVE ASCII" function, so it is all AMOS-legal. Compile your program, if you can.

Bye!

That's it, ladies and gentlemen! Maybe you'll end up making a marketable game with the skills this tutorial's taught you. Jetstrike was written in AMOS, as was Genesia and Valhalla, so there's nothing stopping you. The routines I've given you can be used for a number of different games. Instead of tanks, how about jetboats? Just change the ground to blue, make rocks and lighthouses as obstacles. It's up to you.

You may experience problems with your Amiga crashing when working for long periods on 3D routines. This is because the chip memory is constantly being used to create objects and move them, eventually leaving little memory available. To reduce the amount of memory fragmentation, use Td Keep On, to keep object types in memory, and write a little routine that kills off all object instances before exiting the program. This will give you maybe 3-5 more runs before the Amiga crashes. There will never be a crash if you run the program once, so don't worry about it when you release a game.

The offer is still there for the complete listing and objects via Amiga Review; I've updated the listing with as many Rem statements as possible, but you gotta send me a disk to put it on! By the way, if you intend to use my routines in your game and you market the game, please let me know beforehand. I'd like request a credit in your game as well, but you don't have to worry about copyright; these routines are basically public domain. Thanks to everyone that sent me letters and those of you who are waiting on stuff from me - it's coming, I'm just concerned about quality assurance.

If you have any requests on game techniques that you would like to learn drop me a line via Amiga Review, I may run an article on it, or at least send you some code on how to do it.

❑

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Phase 5 CyberVision

Sneak Preview

The CyberVision64 is the graphics card from phase 5, the makers of the CyberStorm 68060 accelerator (reviewed in this issue!). If it lives up to the standard set by the accelerator, it should be well thought out, well made and very fast.

What you need

The CyberVision goes in a Zorro III slot - so you need an A3000 or A4000. You need a minimum of 2Mb of RAM (hey, if you're buying a 24 bit board you ought to have plenty more than that!), and a revision 11 Buster chip for best performance. There's a pass-though port for the standard Amiga video.

Compatibility

The CyberVision is compatible with the CyberStorm 060. This may go without saying, but the Retina Z3 won't work with the 060.

The idea of the CyberGraphics system - which is available for more graphics cards every day, but native to the CyberVision - is that it integrates better than any other system with Intuition, so fussy programs (like, ooh, just as a random example, Pro Page) actually work with your graphics card. Just pick the CyberGraphics screenmode and away you go. Amazing concept, eh.

This doesn't mean everything magically becomes 24 bit, or even 16 bit, overnight. While poorly written programs may run fine on a CyberGraphics screen, they won't use any more colours than they were originally designed to. If they're AGA-aware software then you'll be able to use 256 colours, but that's where it'll stop unless the software you're running is "CyberGraphics aware".

At the moment, not much is. With the card you get the CyberView graphics viewer and the CyberWindow program to display graphics in windows on 16 bit or better screens, along with the excellent freely distributable screen promoter NewMode. Art Department Professional can use CyberGraphics with the help of the driver that comes with the card, and Photogenics 1.2 can run on a CyberGraphics screen. You also get CyberGraphics drivers for Cinema4D, ImageFX, Photogenics 1, PhotoWorx and Real3D, with more coming out in the public domain every week.

Mind you, if your program doesn't support "proper" modes, superfast AGA emulation's nothing to be ashamed of. Apparently, the only software you can expect not to work is that specifically written for exclusive use with some other graphics card. Mind you, Amiga Intuition Based Benchmarks, which dies on the CyberStorm 060, doesn't work on CyberGraphics either - but you can get tests if you run AIBB on a plain Amiga screen and set the tests to happen on a CyberGraphics screen.

Expansion

Like the CyberStorm, the CyberVision can take expansion modules - though none are yet available. There will be a video processing module, and the nature of the expansion connector means it should be possible for phase 5 to come up with a number of other expansions - video capture, JPEG, MPEG and so on.

Big numbers

The CyberVision can transfer data from Amiga RAM to its own memory at up to 15Mb per second, on a turbo machine. Its internal transfer rate is upwards of 100Mb/s. It also has hardware planar to chunky conversion, for faster emulation of Amiga graphic modes, especially 256 colour. So it can move graphics around very quickly.

The CyberVision can have 2Mb or 4Mb of onboard RAM, upgradable with 72 pin SIMMs, just like the CyberStorm. Its maximum noninterlaced resolutions are 1280x1024 in 8 bit modes, or 800x600 in 24 bit. Interlaced, it can managed 1600x1200 and 1024x68, respectively.

Look out for a full review and benchmarks soon! ***Contact Sigmacom on (02) 524 9846 for info.*** ■

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Storage wars

SyQuest enters the cheap removable fray, and Iomega cuts prices!

By Daniel Rutter

In the olden days, removable drives were the province of Very Rich Nerds. This has changed. Iomega's Zip drive (reviewed last month) gave the world a drive that costs less than $400 and 100Mb cartridges for it that cost $319 for 10, and at that price everyone who can afford a multi-thousand dollar PC can certainly afford a removable drive to keep spare files on, back stuff up to and generally use to take the load off the internal hard drive.

SyQuest Technology, the leaders in removable drive sales, have the Zip drive in their sights with the release of their new EZ135 drive and cartridges. The carts are half-capacity versions of the 270Mb carts currently popular with many users, and the drive's bargain priced, even by Syquest standards.

Now, regular readers will know that articles by me about SyQuests soon degenerate into grumbling, choleric rants about the Inherent Wrongness of putting an eminently damagable hard disk platter in a little plastic case and calling that a removable drive cartridge, but before I get to that, what has the new SyQuest got going for it?

Well, it's forwards compatible with the bigger models - 135Mb carts work fine in 270Mb drives, though 270Mb carts don't work in 135Mb drives. And it's pretty cheap - $399 for the internal version, $495 for external, $39 for a cartridge. Compare this with $800 or so for an external 270Mb drive with a cart and more than $100 for the carts, and it looks pretty worthwhile.

And if the Iomega Zip drive didn't exist, the SyQuest would have it all its own way. With bulk buying you could get the SyQuest cart price close enough to the Zip's that it makes no difference, and $100 difference in the original drive price is no big deal. The EZ135 is also essentially the same as the 270 as far as data transfer goes, so it's considerably faster than the Zip. But there's still the durability issue.

I've said it before, and I'll say it again. Take a Zip disk, or one of the big cartridges used in the more expensive Bernoulli drives, and lob it backwards over your shoulder. Hear it slap against the wall and clatter on the floor. Turn around. Pick it up. Put it in the drive. It will almost definitely work. If you do the same with a SyQuest cart, don't bother turning around.

Grab a Zip or Bernoulli drive in both hands and shake it. Not only will it not break, it will keep working pretty much uninterrupted.

If you do the same with a SyQuest, be prepared to bury both drive and cart with full military honours.

Are people likely to put their drives and disks through this kind of punishment? Not often. But wouldn't you rather have a drive which, if it gets knocked off your desk, will probably still work? Wouldn't you rather have disks you can chuck on the back seat of the car and then go round corners without sweating and peering over your shoulder? I rest my case.

The problem

Unfortunately, the Zip drive has one big problem. You can't get 'em.

As I write, the single Iomega factory in the States is running 24 hours a day on triple shifts and can only satisfy US domestic demand. This means no drives for Australia,

Europe or anywhere else. Iomega were obviously completely unprepared for the popularity of the Zip drive, and they're having huge problems filling orders.

A new factory's being brought on line, but estimates as to when we'll see Zips on sale in Australia vary from mid-August at best to as late as October at worst. So the SyQuest, with its Australian launch slated for the August Melbourne PC Show, will probably have the supercheap removable drive market to itself for a little while. But I've said it before and I'll say it again. You've got to treat SyQuests like eggs. If you don't feel confident about being able to do this, don't get a SyQuest.

Our story

We here at Storm Front Studios, publishers of PC Review and Amiga Review, bought a SyQuest 270Mb drive a few months ago. We'd been muddling along with the old 44Mb carts for quite a while, but they were seriously obsolete and becoming unreliable thanks to their advancing years, so we reckoned it was time to get with the program. We didn't want to buy a SyQuest, but we had to, simply because they're the standard. It's the Windows effect; a PC running DOS and Windows is far from ideal as regards elegance of hardware and tightness of software, but there's such vast support for them that for may purchasers there's no comparison.

So we bought the drive, and a few carts, and set it all up and everything was fine. Lots of storage, decent speed, no errors (we treated the carts with respect, kept them in their padded boxes, didn't knock them off desks).

Then things started to go wrong. Errors appeared on carts now and then, for no reason. You could scare the error away using disk recovery software, but it'd come back, and bring its friends. I ended up spending an hour or two a week fixing SyQuest carts.

And the carts that "went bad" developed lots of other interesting personality traits. Copy a series of huge files onto the cart; no worries, until the end of the last file. Then your computer hangs and the cart's a huge quivering mound of errors. Take a functional cart somewhere else; marvel as it completely fails to mount on someone else's drive. Watch the drive start to spin up a cart, then change its mind, spin back down and pop out the eject lever. Joy.

The immediate assumption when stuff like this happens, and you've ruled out weird interactions between different bits of hardware, is that you've got a lemon. Happens to the best of manufacturers. After all, SyQuest drives, within their limitations for drive and disk abuse, do not have a reputation for shoddy workmanship. The only significant manufacturing defect SyQuest had ever previously admitted to was the tendency for some old 44Mb drives to let the computer fan suck dust in through the front and onto the disk, causing errors, but we've never noticed that on our machines.

The rumour monster

The we started hearing dire rumours about Syquest 270s being inherently unreliable, and worse. We listened for a while, we formed a couple of entertaining fantasies about writing an award-winning blockbuster story about the Great SyQuest Cover-Up, and then I actually did a spot of research.

I contacted both SyQuest Technology and a dealer on the subject of 270Mb drive reliability, and the replies were interesting. The dealer hadn't had an unusual number of 270s coming back for warranty repairs; a few drives will always need fixing, but the 270s weren't, according to him, unusually bad.

But SyQuest Technology sort of somewhat almost admitted to a problem. According to Meyer Mussry, SyQuest's Regional Manager, the 270Mb drive had recently been redesigned to make it more resistant to dust and smoke contamination, and "requalification" of the new model 270s produced a six week shipping delay, which helped to feed all of the rumours. Now, if "our new drives have been improved" means "our old drives didn't work well enough", this could help explain the rumours, and our own nightmares.

How it happens

That the 270Mb drives should be most susceptible to airborne contamination is perfectly logical. It all comes down to data density.

Back in the olden days, SyQuests used the big 5.25" cartridges and only stored 44Mb on them. This was a data density, in megabytes per square centimetre of disk, of about 6.3. Now, 6.3Mb is a lot of data to fit on one square centimetre of disk, but it's nothing compared to what they do today. The latest 5.25" SyQuests store 200Mb, a density of about 15Mb/cm^2, and the 270Mb 3.5" Syquests store around 39Mb/cm^2. To read and write data at this very high density, you need a read/write head that hovers very, very close to the disk surface and operates to amazing tolerances, and this sort of ultra-precise assembly really does not like dust or even smoke particles at all.

In a regular hard drive this isn't a problem, because they're hermetically sealed and filled with clean, dry air. This means no garbage from outside can get in, and low temperatures don't produce condensation on the disk, because there's no water vapour in the air inside the drive to condense.

SyQuest cartridges, however, have to be unsealed or the read/write head won't be able to get in. And despite the best efforts of the designers, if you use the drives somewhere dirty - or just smoke nearby - you're asking for trouble. New 270s may be more reliable, but this can't overcome the concept's basic limitations.

Iomega drives get around the problem by using a non-rigid disk and a different read/write head design - they're like a big, highly evolved floppy disk. They're not immune to contamination, but they're a heck of a lot more reliable than SyQuests. I routinely leave my Bernoulli carts lying around in the dust, and I've never had an error on one that wasn't induced by a program crash. Ever.

Iomega's Zip - so good, you can't get it!

Ours is a non-smoking office, and not particularly dusty. We didn't bash our SyQuest around or drop the carts. Yet it screwed up anyway, to the point where we're not going to risk using a SyQuest again for important data. SyQuests let you make no mistakes.

Cheap Bernoullis!

Iomega aren't taking the SyQuest attack lying down. They've taken note of the biggest consumer problem with their built-and-priced-like-military-hardware Bernoulli drives, and cut prices.

The Bernoulli 230Mb Transportable drive, the external model, now retails for $1039 instead of $1150. Nice, but not a very big deal. However, the 230Mb carts, which used to cost a stratospheric $250 each, now sell for $130, or $624 for five. This turns around the comparison I did last month of the price of a drive plus about 2Gb of carts, and I present the new, improved results to you again.

This time, to even out the numbers, I'm allowing fractions of cartridges, to bring the total capacity exactly up to the line.

20 Zip carts equals 8.7 Bernoulli or magneto-optical 230Mb cartridges, 7.4 270Mb Syquests or 14.8 135Mb SyQuests. For the Zip, you're still paying $1037, or you will be when they're available. For Bernoulli 230Mb, you're looking at $2,144 - at the old pricing, it'd be around $3,300! Magneto-optical will cost you $2,390 or so.

SyQuest 270Mb will set you back around $1,750, and the new EZ135 will cost only $1072, for the external version - again, when it's available.

Overall

In the final analysis, it looks like Iomega's gaining ground on SyQuest Technologies at a great rate. Bernoullis now have a much more reasonable price, and the Zip is sweeping all before it in the USA. Meanwhile, SyQuest's EZ135 will certainly sell, but it'll be fussier about treatment and if you're aiming for the non-professional, home and small business market, this is not the way to go. Time will tell, but my money's on the new boys.

❑

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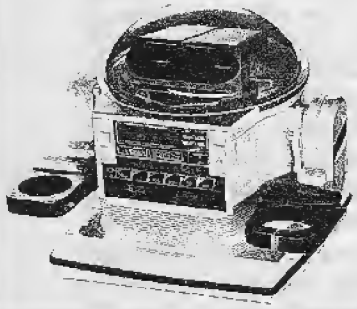

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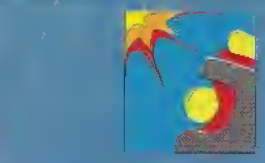


Trivial Pursuit™

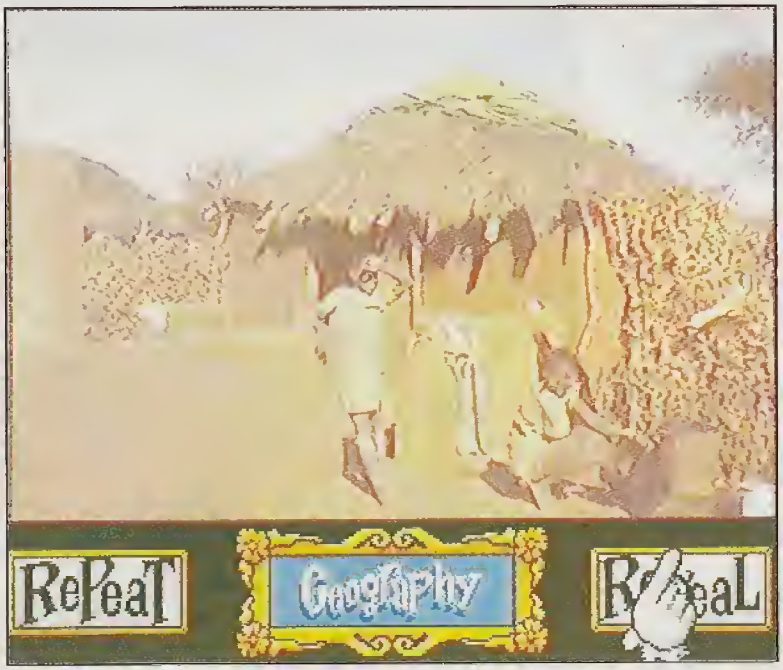
Invented in 1980 by three Canadians, Trivial Pursuit went on to become the world's most popular board game. In 1991, Domark launched the CDTV version - a two disc compilation of some 2,000 questions played from the comfort of your lounge chair, without any risk of losing one of those valuable pie peices, or spilling coffee on the cards.

The game is played in the same fashion as the cardboard equivalent - with a little help from a charming, albeit eventually irritating master of ceremonies, Russell. Chris Langham, well known script writer of Muppet Show fame, turned his talent to creating an extra dimension to the trivia world - a talking bird who makes more wise cracks an hour than a good chiropractor.

Russel is funny, Russel is entertaining, Russel is a bit of a smarty, and thankfully you can turn Russel off! The CD version of Trivial Pursuit adds a number of other important additions to the traditional game. For starters, each category is presented by a famous person. Napoleon Bonaparte asks the Hhistory questions, Christopher Columbus the geography questions, Albert Einstein the science questions - and so the list goes. Each of these cartoon presenters is, like Russel the bird MC, gifted with many humorous one liners.

The questions appear with a picture. For the soft headed this will prove a constant source of frustration, as some of the pictures are a red herring, whilst others provide valuable assistance. When you know the answer, you say it aloud to the other players and then the person with the controller tells the game whether you got it right or not.

Personally I have always found winning at Trivial Pursuit to be a bit of a haphazard affair - that elusive dice throw to get you on a pie can mean the end of your brilliance when some other dummy

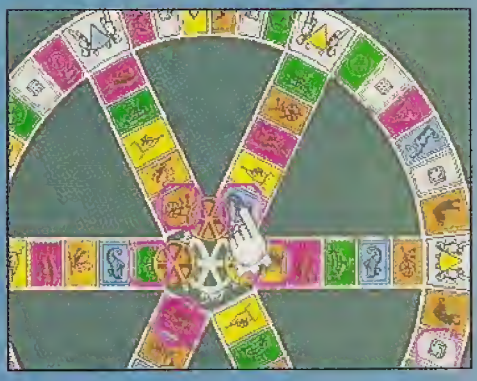


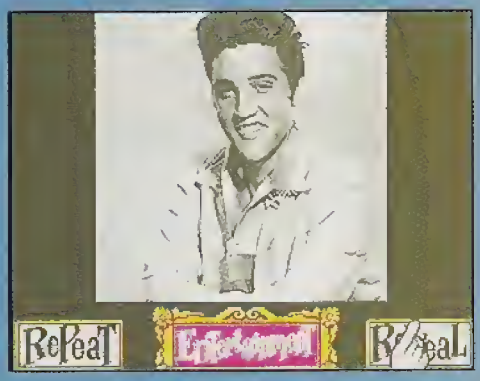
flukes it every time and lands all the easy questions. Well, now you can have your revenge by taking advantage of the CD versions scoring feature. You'll be able to see exactly who answered the most questions correctly - according to subject and in total. You can even save a game to disk so you can gloat about it again later.

Another nifty addition is the option to set a time limit within which questions must be answered - ideal for those indecisive types who like to dither on many possibilities and hog the remote control.

Trivial Pursuit on CDTV/32 is a lot of fun. It's an excellent game to play with non-computer nerd friends. In many months of play, I have found only a few bloopers, on the whole it's a very polished product. You can still get it from most Amiga dealers for around $69. Recommended.

❑





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AMIGA Art Gallery

By Norman Cantrell

Welcome to this months Art Gallery. More great Amiga Art on display, so check it out! If you have art to contribute, why not shoot us a disk - or modem the file to our *new* number on :- (02) 550 2499.

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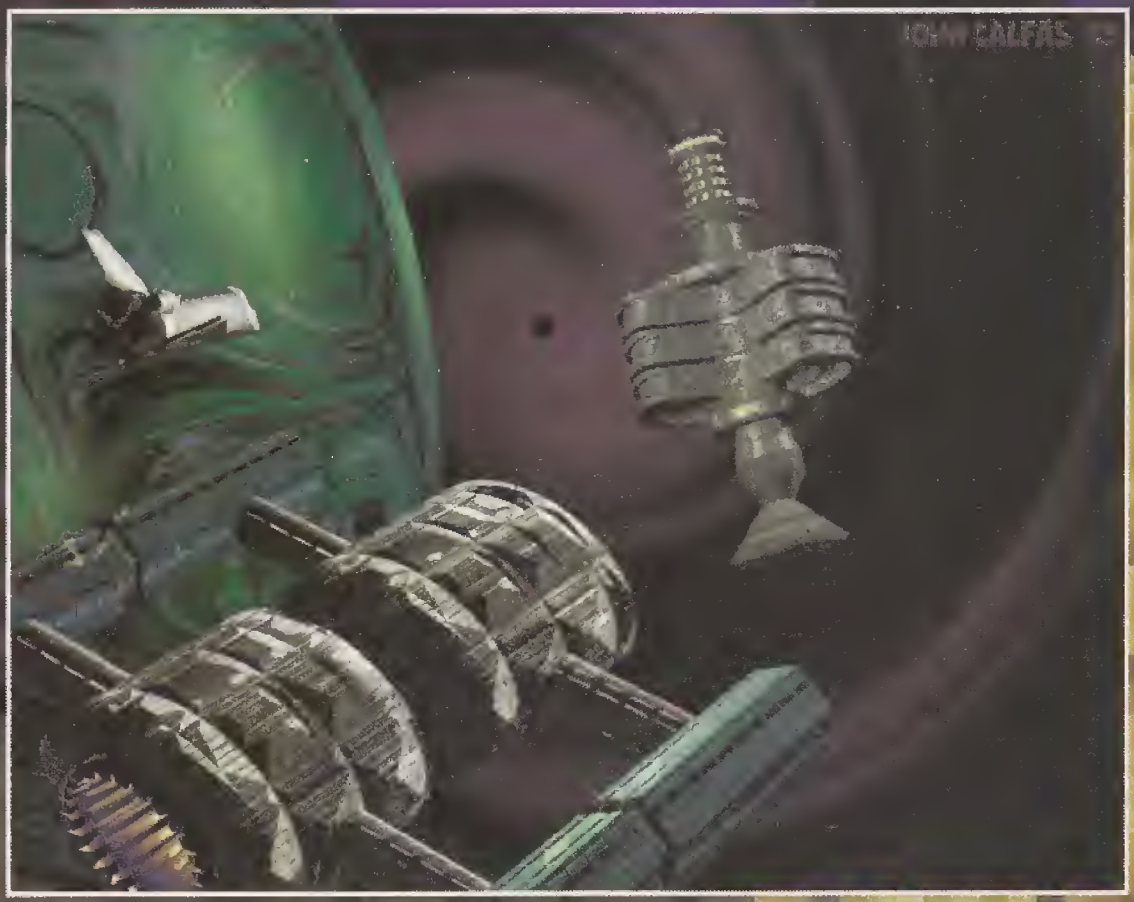

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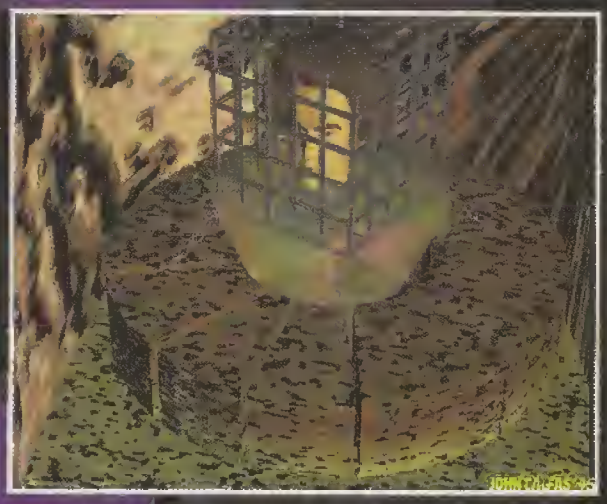

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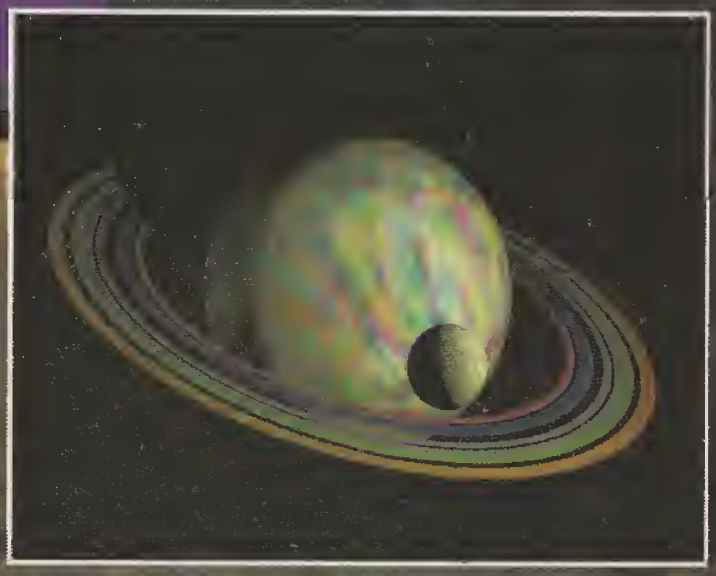

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What price new Amigas?

... continued from page 8

in their margins and announced the $3500 tag, all hell broke loose and Amiga Technologies decided to backpedal. This is, of course, just speculation.

Let us fantasise, for a moment, that this price is in fact reflective of the final selling price of the A4000T. We hope it won't be, and if Amiga Technologies lives up to their damage control statement it should be lower, but let's say it isn't. Why would Amiga Technologies think they could sell 4000s for such a high price?

A hypothetical $US3500 A4000T is not intended as a mass-market machine. That's what the 1200's for. The 4000 is the computer for serious users who need a lot of grunt and expandability, and high-end users looking for a stacked video workstation won't particularly care about $1000 either way on the price of a 32Mb 4000 with 060, 4Gb drive, cutting edge graphics board and all the other bits and bobs. They're still getting a machine less than half the price of the "workstation" competition.

And the videoheads and renderfreaks are a large part of the high end Amiga market. If you're doing corporate graphics for BigRichCo, you can make back $1000 in a day - you don't get worried about price until the difference is $20,000. You care a lot more about getting the best machine for the job.

Unfortunately, however, there are a lot of potential Amiga buyers who don't want a hard-to-expand 1200 but aren't planning to start a branch of Industrial Light and Magic in their bedroom, and also aren't at all happy about shelling out Huge Dollars for the next step up. We're talking about the old A2000 market here. If the base price for the 4000 is unrealistically high, there's no currently manufactured Amiga for these "semiserious" users.

Look out for more news in the next Amiga Review - we should have the real US prices, at least, by then.

❑

Too expensive, too slow, and incompatible - yay Sony!

Mini Disc Data non-starter

Sony's 2.5 inch Mini Disc (MD) music system hasn't become particularly popular, and any hopes Sony had of pushing the format into the computer world, like the earlier DAT, have been at least temporarily squashed by Iomega's Zip drive, which offers higher performance at a lower price.

MD Data stores 140Mb per disc, but the drive costs $1165 - disk prices haven't been announced. Compare this with Zip drives at $399 and disks a bit over $30 (how cheap can the MD disks be?), and it's looking pretty dodgy already.

On top of the price problem - not a major consideration in the professional market Sony's aiming for - the MD Data drive isn't very fast at all. The rated data transfer speed is 150 kilobytes per second, maybe a quarter of what you can expect from the Zip, depending on controller.

One odd feature of MD Data is that it uses a special file system for the disks, so the same data can be accessed on PC or Macintosh machines without any mucking about. Unfortunately, the special file system used can't be compressed with DoubleSpace or the like, and can't be recovered with popular disk repair programs, just an included utility - and there's no version of it for the Amiga.

Sony Australia isn't even distributing the MD Data drive here. A half price, double speed update is due out early next year; it'll have to be good to beat the Zip.

❑

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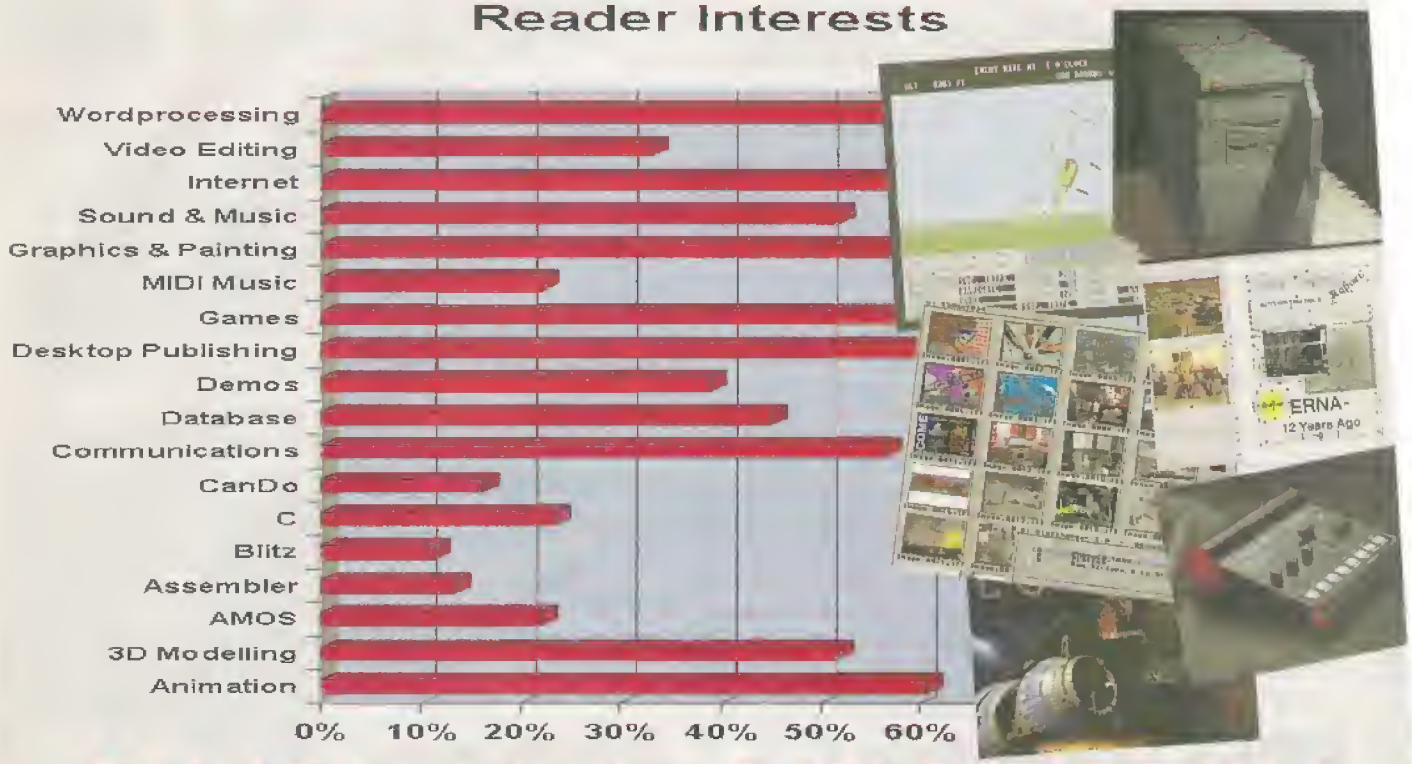

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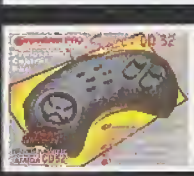

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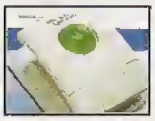

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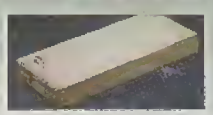

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